# THE OTB

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**OFFICIAL JOURNAL OF THE ANTIQUE WIRELESS ASSOCIATION, INC.**

*Published for the collector, historian and old-time radio operator*

ON THE COVER: PAGE 4

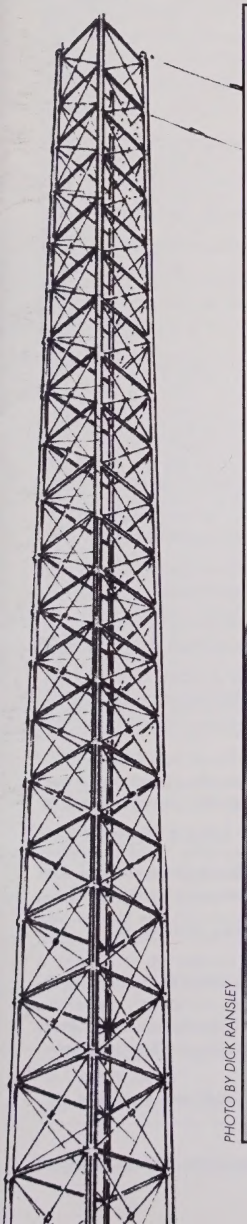

PHOTO BY DICK RANSLEY

CONFERENCE RETROSPECTIVE ISSUE
SEE PAGE 15

# THE OLD TIMER'S BULLETIN

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**BOX E, BREESPORT, NEW YORK 14816**

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# FROM THE EDITOR

Well another Annual Conference is over, and most people I've talked with feel it was our biggest and best. In this issue, as is traditional for November, we review some of the high points so those who attended can relive the experience and those who didn't can see what they missed (We will see you next year, won't we?) Check the big "Conference Retrospective" section for Larry Babcock's lively impressions of the conference scene, as well as reports on the auction results and both the recognition and the contest awards. You'll also find the usual conference snapshots and, new this year, an album of several of the first prize winners in various contest categories.

In addition to the Conference reportage, November is packed with a nice array of feature articles. Abel Santoro has given us a look at Argentina's first valve factory (1935), and I think you'll be quite impressed by how sophisticated the process was all those years ago. Frank Lotito is back with another transmitter using 1930s circuitry and modern components and Bob Lozier, who last appeared on these pages a year ago with his "Tinkerer's Radio," now tackles the more somber subject of disposing of a collector's estate.

Among the shorter items are a report on the simultaneous ceremonies marking the ending of CW operations at each of the last four stations operating in this mode. We thank Member Bart Lee, who attended the ceremonies at KFS, for picking up an extra Globe Wireless press kit for *The OTB* and sharing his experiences with us. There's also a brief review of the very welcome reopening of the wonderful Hammond Museum (Canada) contributed by Ed Gable, the Curator of our own museum. And finally, for those who enjoyed the Bob Morris story about the Vint Hills Farms monitoring station during World War II (in the August issue), Bud Hall has sent in a couple of nice photos of the installation not available at the time of printing.

Of course all of our columnists are back, as always. Some highlights of this issue are the Bruce Kelley and Linc Cundall memorial contest schedules in "Amateur Radio," Part 1 of a 1940s *Saturday Evening Post* article on the political and technological state of television in "Television," a universal battery radio supply in "Breadboarding," and Part 1 of an article on early American tube manufacturers by Australian tube expert Fin Stewart in "The Vacuum Tube."

I'm really pleased with the degree of reader involvement we are beginning to attain in *The OTB*. Without actually checking, I'd say that the "Letters to the Editor" column in this issue is the biggest and liveliest yet. Responses to our Dick Mackiewicz headset list update project continue to come in regularly, and in a manner that I'm sure would delight Dick. We should be printing another list of data in one of the next issues.

Finally, I'm switching Internet providers, so please change my e-mail address in your directories to: mfellis@enteract.com.

So read on and enjoy!

*—MFE*

## ON THE COVER

Member George Durfey has lent his infectious enthusiasm and support to every Annual Conference since the days of Canandaigua. Though Parkinson's Disease has left him dependent on crutches, he misses very little. He is a familiar figure at the flea market, auctions, and seminars—or wherever the action is.

He is a BSEE and happened to be in the last class taught by the legendary Stanford professor Frederick Terman. His 37-year career was spent at the Stanford Research Institute working with steerable antennas.

George is a past Director of The Perham Foundation (Palo Alto, CA), which administered the well-known Foothills Radio Museum. He is a life member of the IEEE and the Ninth Division Association (George served as a BAR man in the infantry during World War II). An avid radio collector, he also loves photography, and has served as official photographer for both Perham and Foothills.

# THE PRESIDENT'S MESSAGE

When you read this, the 38th AWA Annual Conference will have been over for eight weeks, time enough for all the reports, letters, and comments to make the rounds. This year, as usual, the overwhelming consensus, or theme that emerges, is that almost everyone had a good time. Many people have told us that this was the best one that they have ever attended. For the workers who put in very long hours in planning and executing the meet under the overall leadership of Bruce Roloson, the conference organizer, our special thanks. You did a great job!

However, as has been pointed out to me, not everyone seems to agree with this opinion. Only two vendors bothered to talk to me directly, and I received only one (yes, one) letter of complaint. The rest of the negatives came mainly through the Internet chatter which John Dilks made available to us. It appears that the objections were directed at our strict enforcement of the AWA "members only" policy, coupled with the usual requirement that all member-attendees register for the Conference.

Let's go back to previous years. The policy was in place, but we had no practical means of enforcing it. The result was that gate-crashers were everywhere, mingling with the registered members. And last year, unfortunately, one of these reportedly committed outright theft. So this year, for the first time, we hired security people who very prominently and efficiently enforced the rules. While the general reaction was overwhelmingly favorable, a furor raised by a comparative few dealers and "customers" was all out of proportion to their numbers. However, we are sensitive to the situation, and will be addressing it at the next board meeting.

But please consider this: The objectives of the Antique Wireless Association, our "reason for being," is to promote research and documentation of the history of radio and wireless technology, and to preserve and restore the artifacts of this history. To this end we publish some 500 pages of material each year, we have an active amateur radio group, we have a world-famous museum with an active outreach program, we sponsor regional meets, and we have the Annual Conference.

At the latter, we provide a meeting ground, near the Museum, to allow AWA members to come together for several days of shared experiences with our common interest. We also sponsor a full slate of programs for the benefit of the members, including several auctions, numerous talks by active and prominent radio historians, round tables, awards banquets, trips to the museum, an old-equipment contest, and yes, the flea market, which we consider a program. To put on this conference is expensive, and it is for this reason that the registration fee is what it is. We have no provision at present for a partial registration, and while some ideas have been suggested, all have inequities of one sort or another.

It must be emphasized, despite appearances, that we are not promoting a hamfest-type old-radio sales outlet. The flea market at the Annual Conference was started as a convenience to the members, and it remains as such. Some dealers, and a number of the gate-crashers, and the flea-market-only crowd, would have us open it to the general public, forgetting that we are a non-profit organization under the laws of the State of New York. When that happens the sales-tax man appears, and the AWA, and the dealers, would be faced with new financial and parking problems.

Our Annual Conference is unique, with a tried and true format that has been widely accepted by the members, and we have no plans at present to make any major changes. In fact, most people tell us, "Don't change anything." But, we are open to constructive comment, and if you have some ideas which you feel would improve things, please contact us, either myself or one of the board members. I take phone calls and I answer my mail.

— Bill Fizette (E-mail: w2dgb@enter.net)

# AWA NEWS

***OTB* POLICY ON PROMOTING EVENTS:** *The OTB* is pleased to list the meets and meetings of any established antique radio organization, whether or not it is associated with the AWA. Do not send your information directly to the *OTB* Editor. Please send it to Joyce Peckham, Box E, Breesport, NY 14816. Closing date is six weeks prior to first day of month of issue.

## *Calendar of AWA Activities*

**NOVEMBER 7**
Annual Business Meeting

**DECEMBER 4**
AWA Bradenton, FL Meet

**DECEMBER 4-5**
Bruce Kelley Memorial
1929 QSO Party

**DECEMBER 11-12**
Bruce Kelley Memorial
1929 QSO Party

**JANUARY 26-27**
Linc Cundall Memorial
Old-Time CW Contest

**JANUARY 29-30**
Linc Cundall Memorial
Old-Time CW Contest

**FEBRUARY 4-6**
HVRA/AWA Convention

## *Calendar of Meets*

(AWA logo identifies AWA-sponsored events)

### CALIFORNIA HISTORICAL RADIO SOCIETY

November 6

For location and other info check the CHRS hotline (415-821-9800).

### AWA BRADENTON MEET

December 4

Begins 8:00a.m.—Stuart Elementary School, 7950 15th Ave., NW, Bradenton, FL. For info, call Norm Smith (941) 792-0003.

### HVRA/AWA CONVENTION

February 4-6

At the Hobby Airport Hilton (directly across the street from the airport—EZ Van shuttle). Rooms $69, single or double. Two auctions (Friday night and Saturday), technical talks, flea market, old equipment contest (featuring Sears Silvertone), awards banquet. More info: write HVRA, P.O. Box 31276, Houston, TX 77231-1276

## *Recurring Meetings*

• **California Historical Radio Society** — Meets third Wednesday of each month at ITT Technical Institute, 4750 Wesley Ave., Norwood (Cincinnati), Ohio. For more information, contact Greg Tierney (513) 732-1844.

• **CARS, the Cincinnati Antique Radio Society** — Meets on the third Wednesday of each month at ITT Technical Institute, 4750 Wesley Ave., Norwood (Cinti.) Ohio. For more information contact Greg Tierney, (513) 732-1844, or Bob Sands, (513) 858-1755.

• **Carolinas Chapter of the AWA** — Meets approximately bimonthly. For more information, Contact Ron Lawrence, President, P.O. Box 3015, Matthews, NC 28106-3015; phone (704) 289-1166.

• **Central Ohio Antique Radio Assn.** — Meets at 7:30 p.m., third Wednesday of each month at Devry Institute of Technology, 1350 Alum Creek Rd., Columbus. (I-70 Exit 103B). Contact: Barry Gould (614) 777-8534.

• **Delaware Valley Historic Radio Club** — Meeting and auction begins 7:30 p.m. on the second Tuesday of each month. Location: Teford Community Center on Hamlin Ave. in Telford, PA. Annual dues: $15.00, which includes a subscription to the club's monthly newsletter "The Oscillator." For more info contact Bill Overbeck at (610) 789-8199 or Dave Snellman at (215) 345-4248. Club mailing address: P.O. Box 847, Havertown, PA 19053.

• **Houston Vintage Radio Association** — Meets second Tuesday each month (except Jan. and Dec.) at Lai Lai Restaurant, Tides II Motel, Houston Medical Center, Main and Holcombe Sts., Houston, TX. Meetings include auction/program, 7-10 p.m. Assoc. publishes *Grid Leak* quarterly, monthly activity announcements. Membership $15/yr. Write: HVRA, P.O. Box 31276, Houston, TX 77231-1276, or call Richard Collins, (713) 778-0721.

• **Hudson Valley Antique Radio & Phono Society** — Meets third Thursday of month, 7 p.m. Meeting, swap meet, and membership info: Peter

DeAngelo, President, HARPS, 25 Co. Rt. 51, Campbell Hall, NY 10916. (914) 496-5130.

• **London Vintage Radio Club** — This Ontario, Canada club meets in London on the last Saturday of January, March, May, June and November. Annual flea market held in Guelph, Ontario in September in conjunction with the Toronto club. Contact: Lloyd Swackhammer, VE3IIA, RR#2, Alma, Ontario, Canada. (519) 638-2827.

• **Mid-Atlantic Radio Club** — Meets monthly, usually the third Sunday of the month at the New Hope Seventh Day Adventist Church, Burtonsville, MD. Contacts: President, Ed Lyon, 11301 Woodland Way, Myersville, MD 21773-9133, (301) 293-1773, e-mail lyon@fred.net or Membership Chair, Barry Zimmerman, (301) 696-5561, e-mail: barryradio@aol.com.

• **New Jersey Antique Radio Club** — Meets second Friday each month, 7:30 p.m. Holds three annual swap meets. Contact (send SASE) Phil Vourtsis, 13 Cornell Pl., Manalapan, NJ 07726, (732) 446-2427.

• **Northwest Vintage Radio Society** — Meets second Saturday of each month (except July and August), at or about 10 a.m., at Abernathy Grange Hall, 15745 S. Harley Ave., Oregon City, OR. Members display radios, exchange information. Guests welcome at all meetings and functions, except board meetings. For info, write the Society at P.O. Box 82379, Portland, Oregon 97282-0379.

• **Oklahoma Vintage Radio Collectors** — Meets second Saturday each month, Oklahoma Station Bar-B-Q, 4333 NW 50th St., Oklahoma City, OK. Visitors welcome. Dinner/socializing, 6 p.m.; meeting at 7 p.m. Membership, $12/yr., includes monthly *Broadcast News*. Info: SASE to OKVRC, P.O. Box 50625, Midwest City, OK 73140-5625, or call (405) 755-4139 or (405) 732-6070.

• **Ottawa Vintage Radio Club** — Meets monthly (except June and July) in Conference Room, Ottawa Citizen, 1101 Baxter Rd., Ottawa, Ontario. Contact: Tom Devey, 601-810 Edgeworth Ave., Ottawa, ON K2B 5L5, (613) 828-5152. Membership: $10 Canadian/yr.

• **Society for Preservation of Antique Radio Knowledge** — Meets at 7:30 p.m., fourth Tuesday of each month in the party room at Cassano's Pizza Parlor, 1700 East Stroop Rd., Kettering, OH. Membership, $12/year. Write P.O. Box 482, Dayton, OH 45449; e-mail sparkinc@juno.com; or call Dan Gebhart (937) 299-9570.

• **Texas Antique Radio Club** — New club forming in San Antonio area. Meeting dates to be announced. Contact: Joe Koester, President TARC, 7111 Misty Brook, San Antonio, TX 78250-3498. (210) 522-1662.

• **Tube Collector's Group Formed** — The new Tube Collector's Association is now in operation. This is an organization of collectors and history enthusiasts focusing on all phases and vintages of tube design. The founding president of the group is Al Jones, W1ITX, who is known for his award-winning tube collection. For more details and complimentary copies of the association's bulletin, contact Al at (707) 464-6470, Ludwell Sibley at (541) 855-5207, or mail to P.O. Box 1181, Medford, OR.

## *Service Sources Available*

The AWA Source Sheet is a listing of parts suppliers and services for the radio collector. Cost: only a business-size self-addressed stamped envelope to AWA, Box E, Breesport, NY 14816.

## *AWA Slide/Video Program*

The Antique Wireless Association has available several historical documentaries to loan to affiliated organizations for club meetings and programs. There is no charge for this service other than return mailing cost. For info on loan conditions, to make reservations, or just inquire, contact Richard Ransley, P.O. Box 41, Sodus, NY 14551. The following are available:

### VHS VIDEO PROGRAMS

V-2 — "Electrons on Parade." 18 min. 1938 movie made at RCA's Harrison Plant showing production lines with closeups showing receiving tubes, including a short sequence on transmitting tubes. (Very rare movie.)

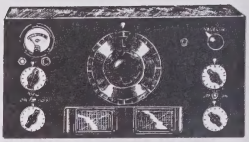
V-4 — "The British Receiver." Documentary of the AWA/BVPS meet with visit to Marconi's Chelmsford plant, the British Science Museum, and ending with series of collectible British receivers. (VHS program transferred from slides.)

V-5 — "The Early Years." Historical documentary narrated by Clarence Tuska telling of the early years of amateur radio, founding of the ARRL and WW I military radio training school. (VHS program transferred from slides.)

V-6 — "The Key." History of the telegraph/radio key covering early hand keys, semi-automatics and commercial types. Script by Lou Moreau, W3WRE. (VHS program transferred from slides.)

*(continued on page 9)*

# THE COMMUNICATIONS RECEIVER

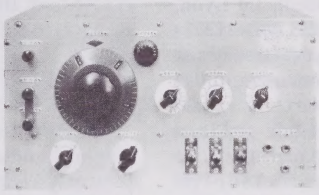


EDITED BY **WILLIAM FIZETTE, W2DGB**, RR 1, BOX 55, HENRYVILLE, PA 18332
*PLEASE INCLUDE SASE FOR REPLY.*

## The Japanese Model R-140 M

*A World War II Military Communications Receiver*

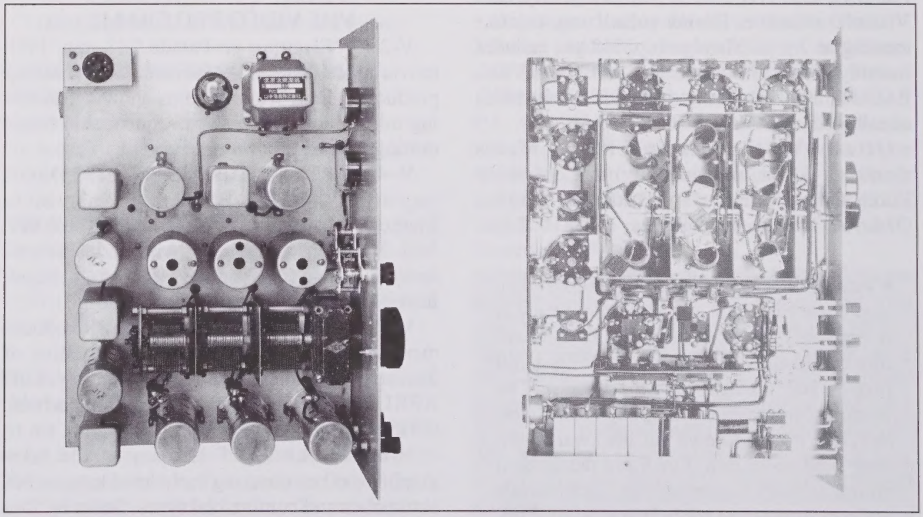
While I was leafing through the National Company photo archives on loan from radio historian Alan Douglas, I ran across three photos of an interesting receiver—the middle-to-late 1930s Japanese R-140 M communications set. It is often said that imitation is the most sincere form of flattery, and this receiver is a good example. Apparently the Japanese designers thought enough of the National-designed NPW three-section variable capacitor with its gear reduction unit and attached PW dial that they copied it almost exactly for use in this set, even to the National-style diamond-shaped dial index.



*Like most military sets, the R-140 M has a front panel laid out for business, not beauty.*

Let me emphasize at the outset that I do not have this receiver, I have never seen it except in the photographs, and I do not have a manual or any other information. The following paragraphs are based wholly on a detailed study of the photos. However, if any of our readers happen to have additional information, I'm sure that the rest of us would appreciate receiving it via this column.

The main label on the front panel tells us that this receiver covers a range of 1500 kc to 20,000 kc. The main PW tuning dial, with an effective bandspread of approximately twelve feet, is just to the right of the antenna and ground connections. Below the dial is the AVC switch and the 4-band bandswitch. At the upper right of the dial is what appears to be an antenna trimmer capacitor control.



*Left: The 3-gang main tuning capacitor is a direct knockoff of the National-designed NPW. All tubes are ST-12 style with grid caps. Right: The neatly-done wiring is buss-style with liberal use of spaghetti insulation. Bypass caps appear to be mica.*

The first of the three in-line controls to the right of the PW dial appears to be a capacitor, and the other two are gain controls. The middle one is probably the RF gain, and the outer one the audio gain. The three telephone-type lever switches most likely perform some control functions, such as SEND-RECEIVE, SPEAKER-PHONES, BFO, etc. Finally, there are three single-action phone jacks, probably connected in parallel to allow for multiple listeners.

Take a good look at the top view. The National-style capacitor unit appears to be identical to the parent, except for the top casting of the gearbox, which has the designation YEC instead of the usual NC. The photo shows that this is an eight-tube receiver, dependent on an external power unit. There is one RF and two IF stages. The final audio appears to be transformer coupled. Tubes are all the six-pin ST-12 outline types with grid caps.

The below-the-chassis view shows a neat layout with all components readily accessible. Wiring, neatly done, appears to be buss with a liberal use of spaghetti insulation. All parts appear to be of high quality. The by-pass capacitors could well be mica, and it is very possible that this receiver, if unearthed today from some storage depot, would work immediately without servicing, and probably give a good account of itself by 1940s standards. The design is fundamental, without any expensive sheet-metal fabrication or surplus circuitry.

This particular model appears to be in mint shape and was probably received at the National Company laboratories for evaluation either during the war or very shortly thereafter. The very professional photos are in with all the others done by Benj. Morse of Boston, and although these do not have his imprint on the back, they certainly appear to be his work. This is a most interesting receiver and, if it still exists, I envy the owner. Incidentally, if there is enough interest, I can probably get the Japanese characters translated from the original photos.

---

***AWA NEWS,*** *continued from page 7*

V-9 — "The Transatlantic Tests and 1BCG." Rare documentary/photographs showing early amateur operation leading to famous 1921 transatlantic tests.

V-12 — "Those Wonderful Magazine Covers." The story of radio through magazine covers. Colorful with period music.

V-15 — "The WHAM Story." Details development of a pioneer radio station in Rochester, NY. Program developed with assistance and recollections of Art Kelly, the station's former general manager.

V-16 — "The Charles Herrold Story." Video prepared by Mike Adams who donated this copy to the AWA. It documents the work of broadcasting's Forgotten Father who started broadcasting in 1912.

### SLIDE PROGRAMS

S-1 — "Portrait of a Pioneer." The life of Elmo Pickerill.

S-2 — "Polar Adventure." Pictures taken by Bud Waite and his narration describing numerous trips to the Antarctic over a 35-year period.

S-3 — "70 Years of Vacuum Tubes." Describes the history of vacuum tubes.

S-4 — "The Early Years." (See description for V-5.)

S-7 — "The Transatlantic Tests and 1BCG." (See description for V-9.)

S-8 — "Trip Through the AWA Museum" Covers exhibits and equipment.

S-12—"The Key." (See description for V-6.)

## AWA NETS

PHONE:

**SUNDAY:**
7247 kHz, SSB, noon (NCS:N4FS); 3837 kHz, AM 4 p.m. (E.S.T.), 4:30 p.m. (during E.D.S.T.) (NCSs:W2ZM & W2AN)

**TUESDAY:**
14274 kHz SSB, 2:30 p.m. (NCSs KC3YE and W0FXY) 3837 kHz SSB, 8 p.m. (NCS N4FS)

**MONDAY-WEDNESDAY-FRIDAY:**
3867 kHz, 9:30 a.m. (NCS: W2SHN)

CW:

**DAILY**, 4 p.m., 3588 or 7050 kHz. Protocol informal. Check both frequencies for activity and join in, or call AWA de (your call) and see what you stir up. First **WEDNESDAY** of each month, 8 p.m., 7050 kHz

2-M REPEATER (Rochester Area)
**MONDAY**, 7:30 p.m. (NCS: W2ICE)
Receive 146.820 MHz;
Transmit 146.220 MHZ

# LETTERS TO THE EDITOR

*All letters to the Editor are read with interest and attention, though not all can be published in this column. Letters may be paraphrased, shortened or otherwise edited to fit the available space. The statements made by our correspondents are their own opinions and do not necessarily reflect the views of either the* OTB *staff or the Antique Wireless Association.*

### AWA IS Y2K READY

Our AWA membership base is Y2K ready. Check the number above the name on your mailing label (US members). It represents the date when your AWA membership expires. You will note that it gives the year then the month. Thus 199911 translates to eleventh month (November) of 1999. 200005 translates to the fifth month (May) of 2000. AWA members will not miss any of their *OTB* issues due to year-change computer problems.

JOYCE PECKHAM
*Secretary, AWA*
*Breesport, NY*

### MORE ON THAT FILAMENT WIRING ISSUE

I enjoyed Dick Parks' "Breadboarding" article a great deal. I have shared his puzzlement for many years at the A-, A+ issue regarding the detector grid wiring and RF return, and often wondered at the rather strange filament wiring of some of the three dialers (especially A-K). This is regarding not only the issue of A+, A-, but also the practice of how the external ground lead is connected (versus B-) and where the filament series "pot" is wired…and why; i.e., the RF external "ground" is wired to A+ in AK 30-35; yet, the A+ RF filament rail is only connected to the rest of the radio (and B-) through the filament pot impedance (to the real A+ and through the tube filaments to A-). These particular radios also use a tapped filament dividing resistor to the grid leak, sort of "splitting" the difference; although often shown as a 50/50 split, units I have measured often show a 70/30 split.

It all seems to make no sense from the present day perspective, at least at first glance, and I don't feel that, even with the two excellent letters (from Vernon Chappell and Dan Merz) in the August 1999 *OTB*, we have a truly satisfying answer.

Obviously, something intentional was going on here, either from an empirical perspective or from a real engineering effort. I personally think they knew exactly what they were doing! In thinking this through, I came up with the following:

1. The 01A tube is physically symmetrical regarding which pin is A+ or A- (despite labeling of A+ and A-). This is perhaps not true of later 1.5 V types (1U4, IT4, etc.) which may be constructed a certain way to overcome what I describe next. (Grid spacing etc.)

2. The 01A tube has 5 volts of DC across the filament. This means that one end of the filament is 5 volts "ahead" of the other end regarding the useful grid base of the tube. I believe this will almost give a semi-remote cutoff characteristic at low plate voltages, when the total grid base (useful grid signal voltage) is small compared to 5 volts DC, and if the RF signal is referred to A-.

In other words, for a given grid bias, the A+ or signal reference end of the filament will emit at 5V Vg LATER than the 5V negative end, if A+ is the external signal reference. (Figure 1) (This is tricky, but remember that a positive cathode potential to reference ground is the same as a negative grid potential i.e., cathode bias); or put another way, a negative cathode potential (like the negative end of the filament) is the same as a positive grid. The transconductance will rise rapidly (and plate resistance drop) as more and more of the length of the tube filament begins to act; i.e. at -5Vg, maybe only 10 percent of the filament length near the - end is doing anything meaningful with a small AC RF signal on the grid. The end near A- potential which cancels the -5V Vg does the work; the positive end is cut off by the -5 Vg.

Thus, the "filament pot" method of volume control in the RF stages may be much more sophisticated than a "first look" would lead you to believe; it is changing transconductance via bias as well as temperature.

Again, remember the 01A tube is symmetrical from A+ or A- (as far as I can tell) regarding its V shaped filament. A+ and A- have no meaning to the tube itself.

This variable action transconductance would aid the emission gain as the volume is "raised" with an A+ signal return. The average filament potential is then made more negative (or same

thing, grid more positive) with respect to the "earthy" A+ end (and the signal potential) causing more anode current. A center tap should tend to keep things more constant and is the way to go except for battery drain issues. Any (-) cathode derived DC bias, even for part of the filament, tends to cancel the negative self bias produced by RF rectification; for non-detector stages, the audio or RF transconductance (gain) will vary directly with this filament derived DC bias. It is an erratic situation when a variable RF carrier level sets the bias.

In that regard, note also that, without an audio gain control, all of these early 01A detector and audio circuits are operating within rather narrowly defined design signal levels, and that the RF gain (RF filament pot) only sets up the right detector RF level for things to work as intended at the detector stage regarding distortion, detector plate current, and net detector Vg level.

From these considerations, the tube will have, by far, the most gain and overload ability when a very small RF potential low side is connected to A+ of the radio as it is in the later A-K breadboard, nothing to do with the tube markings. The full transconductance gain of the tube will only happen when the RF or AF grid potential results in a signal that is large compared to 5V and probably centered somewhere between 0 and 5V (mid tap). Thus, those 3:1 audios and with no C battery could work if connected to -5V and the AC grid signal is much less than that(!), as the filament (+) end then gives 5V of cathode bias. The first audio in the later AK is so connected!

These bias difficulties (one end is always wrong) could also have led to the design of the 112 and 71-A, with much higher grid bias (71A is 40 V!) compared to the 5V filament; and the 71A is still usually tapped halfway. These issues could also have led to the 26 RF tube, (1.5V AC filament—it's not only thermal inertia). And the 27…with a unipotential 27 cathode the above rather "wild machinations" around the DC filament circuit disappear. Thus, the 27 will always be the detector of choice even though the 26, 45 and 71 survived in the first AC TRF radios. The latter are really more specialized, correctly biased OlAs.

Regarding the points in the two letters, the resistance of the 01A filament (three .25A tubes in parallel per pot) is only 6Ω; with 1A tubes it is only 2Ω in parallel with the battery and pot. The math shows there is no possibility of meaningful negative feedback across less than 2Ω with 1 or 2 ma of plate current, although the theoretical consideration seems correct. Regarding Dan Merz's point, how one really models a grid leak

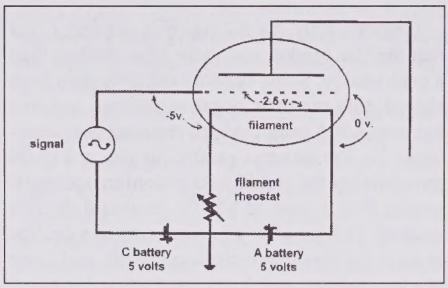



*Fig. 1. "Stretched out" 01A filament—bias varies along length. (Drafting courtesy Dick Parks)*

detector in order to design it is a good issue, especially one with a 5V DC filament.

In some very early editions of (I think) Terman, the input triode grid-cathode is modeled as a parallel Fleming diode where the anode (hot) end of the diode is directly connected to the triode grid (think of a 6AL5 from grid to the (-) filament end of the 01A). The triode can then only amplify the (-) variation of the RF envelope due to the grid capacitor charge and "6AL5" clamp. Also, the + end of the filament is mostly cut off due to the 5V filament. Note that this diode to the (-) end is still there even if we connect another one to the + end; it conducts 5V sooner at the (-) end. I like this model as obscure explanations around "non linearity in the plate circuit" are meant for professors and math students (I couldn't resist that.. .and Terman probably tried to!) The black art of iteration plays a big role in filament type grid leak detectors, as Dick Parks points out. A variable DC static bias injected via the grid leak is yet another parameter, as AK did with the 70/30 TAP. The ( factor versus filament DC potential, end to end is another; a low ( tube seems better for this, especially if of the filament type, as it won't cut off as fast at the wrong end.

I hope this adds some fuel to a very interesting discussion in *The OTB*.

JOHN K. GRADY, P.E.
*Grady Research*
*Ayer Mass*

## CONFERENCE COMMENTS

As a dues-paying member of AWA for the past twelve years, I have regularly attended the AWA Conference in Canandaigua, and now Rochester. I have participated in many of the activities this fine conference has to offer, including the granddaddy of all antique radio flea markets.

Unfortunately, as a long-time vendor, I feel that the flea market was more of an orphan than a granddaddy. Some vendors and attendees have shared with me their negative feelings towards the new AWA policy which required non-members, *i.e.* the general public, to pay a $15.00 membership fee and $24.00 in conference registration fees, a total of $39.00, to attend the flea market! This prohibitive policy caused a decline in sales for vendors, including myself, and came as a total surprise and disappointment to Rochester area residents who had been eager to savor this unique flea market experience.

As I understand it, this new fee policy was implemented to avoid a repeat of thefts last year which were traced to people "off the street." Unfortunately, this policy seems to have alienated vendors and prospective buyers alike.

In discussing this issue with an AWA board member, I was reminded that the AWA is a private club, with its activities available to members only. This position is certainly valid for all conference activities, *except* for the flea market. In fact, the reverse should apply! The flea market needs to be viewed as a great annual opportunity to welcome the general public. Let the public browse and buy; through this unique exposure to thousands of antique radios and artifacts, who knows how many interested viewers would be caught up in our world of radio history, and might even join our association!

From a different perspective, I learned that the new flea market admission policy significantly increased AWA membership. I'm sure it did, but at what cost! How many frustrated individuals walked away from the registration desk because they would not, or could not, pay the $39.00 flea market admission fee. How many who paid the membership of $15.00 as part of the tab will renew their membership next year? How many people bypassed the security guards by jumping the orange "snow fence," thereby gaining free, but illicit, admission?

In short, are the extra funds generated through this new policy worth the bad feelings that have also been generated?

One angry person told me that he and a friend drove all the way from the Buffalo area, anticipating a fun day in the renowned AWA flea market. To their chagrin, they were refused admission unless they paid the $39.00. Since they had come a long way to browse and buy, they weren't about to just head back home. One grudgingly paid the fee, and his companion apparently "jumped the fence" to get in. I don't condone this action, but I hope a serious reconsideration of this fee policy will help "mend the fences." Perhaps a separate, modest, admission fee for a "Flea Market Only" badge is an answer.

If the flea market becomes open to the public, will either the vendor or the buyer be subject to the New York State sales tax? Most likely. Would the present AWA liability insurance policy cover accidents involving the general public while on flea market grounds? If not, would there be additional premiums to pay? These would certainly be problems to be resolved.

But, there is an overriding question: do we, as members of this association, consider it an important mission to impart a greater awareness of radio history to the general public? If we do, then we must place that mission in greater priority, and consider the inconvenience of tax collecting and the imposition of flea market fees as secondary and resolvable issues.

RICHARD E. DESJARLAIS
*Littleton, MA*

*The issues you raised have already been extensively discussed among board members via the Internet, and will be the subject of additional discussion at the formal board meeting this November. President Fizette summarizes AWA's position so far in his "President's Letter" elsewhere in this issue.*

You fellows did it again! We have attended conferences since the first Dearborn get-together in 1967. We must say that this one was the best in these 33 years! It is amazing that AWA officers, planners and workers continue to make improvements each year.

Conference speakers and their subjects were very good this year and I enjoyed them and learned from them. We would say that the contest was the very best this year and it was a pleasure to take part in it. Having more set-up room was very much appreciated.

The addition of conveniences, such as the van service from our motel to the Marriott Hotel, were also very much appreciated.

Scheduling the Conference after Labor Day next year will be a convenience for everyone. Since the theme is Crosley next year, I will have to find a pair of Crosley Headphones, made by CTS, for my early Crosley battery sets.

Again, we wish to thank the Officers, Speakers, planners and the indoor and outdoor workers for doing a great job this year!

ROSS & WAVA ROSE SMITH
*Indiana Historical Radio Society*
*Elkhart, IN*

## TOO MANY EXCLAMATION POINTS!

Upon seeing the new *OTB* cover, the first thing I thought was "Uh-oh—an idle brain is the devil's workshop." I don't want to nitpick, but I fail to see how the new name does much "to welcome newcomers"; if anything, the purpose of our neat little publication may be even more obscure than it was before (albeit "*The Old Timer's Bulletin*" sounded like something intended for the geriatric set). Anyway, the new cover misses the mark and gets a yawn and a thumbs-down from me.

That said, there is something else disturbing to me about the current editing style: too many exclamation points! Without being microscopic in looking for them, I found well over forty of the annoying little beasties in the August issue. In my view, exclamation points should be reserved for such dynamic phrases as "Yipes!", "ITS WAR!, or "Holy Hammarlund, Batman!". We probably don't need more than a couple of them in the kind of material contained in the average issue of the Bulletin.

Speaking of the material in the Bulletin, it is always informative, entertaining, and useful. I read each issue voraciously and I'm always pleased with what I find in there, no matter what's on the cover. Indeed, you could probably ditch the name on the cover altogether and just feature a picture with the heading "Antique Radio and Electronic Stuff!" and you would do great. It would also give you an opportunity to use an exclamation point in every issue.

Sarcasm aside, I wish to thank you and everyone who contributes to the success of the *Bulletin* and the AWA Museum, and all those who collect, preserve, and operate old electronic equipment of all kinds. I find all of this extremely interesting and fun.

KEITH A. KUNDE, K8KKK
*Independence, Ohio*

*Well "Holy Hammarlund, Batman!" I'm sure glad you came up with that compliment at the end to take the sting out of your prior comments. One wonders how much more acerbic your letter might have been if the devil hadn't already occupied you with that exclamation point counting exercise(!).*

*I only wish you were right about my having nothing better to do than to mess around with the* OTB *cover. Fact is, I don't always have the time I need to do the most thoughtful possible job editing* The OTB. *That's why gaffes like the exclamation point problem you mention will sometimes slip in. I agree that overuse of such punctuation is a little precious and certainly weakens the intended impact. Sincere thanks for calling it to my attention.*

*As to the cover, I'm on record in last issue's editorial with my reasons for changing it and won't comment further except to say that I didn't expect to please everybody. Sorry we disappointed you (manfully resisting an urge to insert one of those little punctuation beasties here). However, in the next issue, I promise you a much-reduced exclamation point density. I can't hold out much hope for this issue because most of it has already passed through my computer.*

## TESLA FALLOUT

Congrats on the new forward-looking cover format, and more especially, your progressive spirit.

And now my two cents about M. Twose's letter and the Tesla power broadcast in Colorado. *(See 'Tesla "Censorship' in the August 1999 "Letters" column.)* I always suspected there was some slight exaggeration in that report, maybe 199 bulbs lighting up at 25 miles away but surely not 200 at 26 miles!

DALE PARSONS
*Via e-mail*

As a Tesla admirer, I nonetheless marvel at some of the feats attributed to the inventor. An August 1999 letter to *The OTB* cites the oft-quoted lore that Tesla fully lighted 200 fifty-watt lamps from a distance of 26 miles, but that the story was suppressed by the financial interests.

Experience with crystal sets shows that with a good antenna, at comparable distances from a 50-KW commercial AM broadcast transmitter, one can tap approximately one milliwatt of power. Tesla would undoubtedly have used a higher power (one-megawatt?) transmitter, and further enjoyed the low-frequency groundwave benefit of reduced propagation attenuation.

However, these advantages would have been somewhat offset by the extremely poor radiation efficiency of his electrically-short vertical antennas. The combined effect might allow transmission of enough Tesla energy to light a single LED at 26 miles, but likely not a flashlight bulb. Even Cheney ("Tesla: Man out of Time") states that there is no evidence that Tesla ever accomplished the 200-lamp feat. Tesla was a towering genius, but not a magician.

GARY GORDON
*Saratoga, CA*

Regarding M. Twose's letter in the August, 1999 *OTB*, I had no intention of censoring any information about Tesla's wireless work, but I did confine my article to information from reliable sources. The story that Tesla wirelessly lighted 200 bulbs consuming about 10,000 watts of power at a distance of 26 miles from his Colorado Springs transmitter is tantalizing, but I do not know of any primary reference source that corroborates it.

If M. Twose or any other *OTB* reader knows of one, I would be glad to hear about it, because it would be the best and perhaps only experimental evidence that Tesla's earth conduction mode of transmitting electrical power or signals works over significant distances.

HENRY M. BRADFORD
*Wolfville, N.S., Canada*

## THE OLD DAYS

Oh for the joy of listening during the good old days of radio. You would build a crystal radio set on a rolled oats box, fool around with the cats-whisker until you found a hot spot on the galena, and bring in a local radio station; sometimes, a farther-out one. What thrill!

Later, you would graduate to a one-tube plug-in-coil regenerative set, adjust the regenerative control just right, and bring in short-wave radio stations from all around the world. Another great thrill!

Back in those good old days, there were many projects you could build. These projects were shown in many radio publications, including magazines such as Popular Mechanics, Popular Science, and many others. You could also go to a radio store and buy any radio part your heart desired. Not so today.

Hi tech has taken most of the joy out of radio. Sure, you can transmit and receive well on those high tech systems, but the thrill is gone.

I've had the pleasure of knowing Bruce Kelley, co-founder of the AWA. I first met him at hamfests and flea markets where I sold antique radio items. In fact, Bruce and I both belonged to the same radio club in 1961: The Antique Radio Guild of America. One of the first antique radio clubs in America, its membership list included well over one hundred good old names. I still have a copy of it if anyone is interested.

RAYMOND S. FISHER
*P.O. Box 488*
*Charleroi, PA 15022*

## TIE CLASP FOUND AT CONFERENCE

A service-award tie clasp was found following the banquet at the AWA Rochester conference. If the owner will write to Joyce at P.O. Box E, Breesport, NY 14816, with a description of the tieclasp, it will be mailed back to him.

JOYCE PECKHAM
*Secretary, AWA*
*Breesport, NY*

## VLF HAMMING ONCE MORE?

I'd like to suggest the AWA Board of Directors take an active role, along with the ARRL and the LWCA, in petitioning the FCC for to reestablish formal amateur radio assignments below the standard AM broadcast band. As many of us know, our amateur radio cousins in the UK, much of Continental Europe, Australia and New Zealand have formal amateur radio assignments at these "primeval frequencies."

These frequencies are indeed representative of those used during the "birth of radio" prior to WWI! As North America's principal organization devoted to preserving the hardware, applied and technical academics, and cultural history, of wireless communications, we should be at the forefront of such efforts.

Many of us have followed the progress made by the LF and VLF amateurs and experimenters located in here and around the world. Tremendous improvements in LF/VLF communications effectiveness have been made by employing different aspects of digital technology. However the AWA, seems to have forgotten that the second "R" in ARRL stands for a communications mode. The "RELAY" mode does indeed present opportunities for the AWA to bring back a common form of amateur radio that has long disappeared, and was a primary purpose in the establishment of amateur radio as a technical pursuit!

Maybe the AWA can invent a "relay type" on the air event, eventually to be transferred to a new LF band? I'm sure it will be a ball for us who attempt to build and operate the primitive (vacuum tube of course) transmitters! You never know, the Poulson Arc transmitter may even make a comeback if we can clean up it's emissions a little bit more!

FRANK J. LOTITO, K3DZ
*Pittsburgh, PA*
*e-mail k3dz@aol.com*

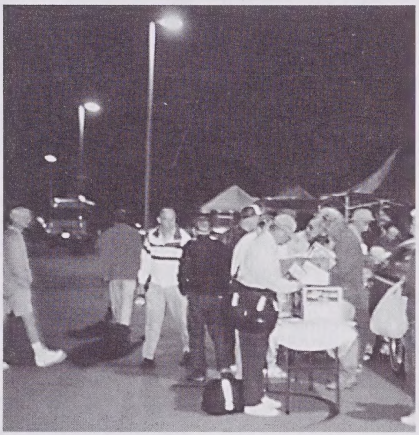
*Photos by the author.*

# THE 1999 ANNUAL CONFERENCE:
## *One Man's Impressions*

*By Larry Babcock*

### *Flea Market*

The AWA annual conference was held at the Thruway Marriott in Rochester, NY on Sept 1-4, 1999. I arrived the previous evening so as to be able to hit the flea market when it opened at 6 a.m. Wednesday. The flea market ran very smoothly this year. There were no early set ups or sales before the scheduled opening, but sellers were allowed to claim their spots and set up any tents or tarps the previous evening. Off-duty police helped to assure that things ran smoothly and that all attendees were AWA members and registered for the event. This created a rush for visitors to join the AWA and many new members were signed up. The theme this year was "Philco" and it did seem as though there was more Philco merchandise in the flea market than usual.



*The flea market as it looked when I arrived. The sun didn't show up until almost an hour later!*

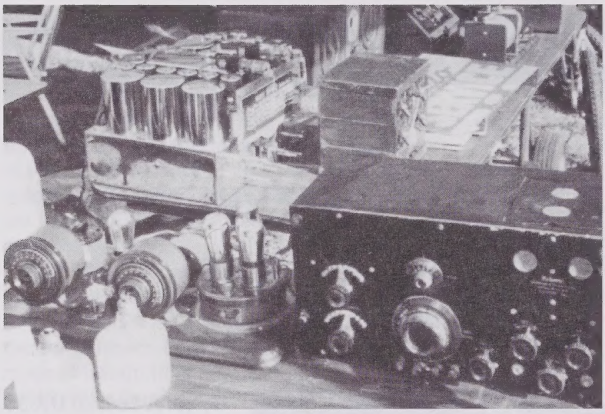
The weather was hot and dry throughout the 4 days. The flea market area was large. I had heard that Elgin had become smaller the last few years, and expect that makes this ours the largest of all antique radio meets. Certainly the programs presented here are unsurpassed and visitors may also visit our world-class antique radio museum.

There were a lot of fine objects for sale. I saw several buyers dickering for a nice-looking Kennedy 110 with the 525 Amplifier. $2,300 was the asking price and $2,100 was being offered. A Federal DX 58 was offered for $900 which seemed reasonable, but $500 for a Federal Jr. seemed a bit high. A very nice 4-tube AK breadboard was offered for $1,250 and I saw a beautiful Radiola Grand, with tubes, for $800. I almost bought a Federal #135 4-tube panel radio but we never resolved the difference between my $300 bid and the $400 asking price. I wish now I had paid the extra amount. The flea market seemed bigger this year. There were sellers set up in the grass along the Thruway and in the grass to the west of the parking lot. Parking was so tight that it became necessary to provide a bus to bring visitors to and from their motels.

### *Presentations and Other Activities*

No other radio club even comes close to presenting the quantity and quality of programs available at this meet. There were 11 presentations this year and they were well attended. The theme was "Philco" and three programs were given on this subject. I attended the one given by Ron Ramirez. About 200 heard Ron tell the history of the Philadelphia Storage Battery Company, later Philco, and their radio products. The other Philco programs included "Philco and the Miss America Pageant" and "Philco—Those

**AUTHOR'S ADDRESS: 8095 CENTRE LANE, EAST AMHERST, NY 14051**



*This flea market table featured an interesting 4-tube breadboard ($1,250) and a Federal DX58 ($900). There's a Scott chassis in the background.*

Beautiful Hand Painted Philcos." Other presentations were "Shortwave History," "Key and Telegraph Seminar," "The Amateur Radio Station That Time Forgot," "Vacuum Tubes Seminar," "Amateur Radio Topics," "A High-Performance Crystal Set," and the "Pre-1912 Wireless and Electrical Apparatus" show and tell.

New this year was an open meeting where members could make suggestions and ask questions about the club. President Bill Fizette was impressed that over 50 members attended. It was said that the museum may eventually be moved from its present location because of limits in space, environmental control, handicap access, etc. A larger building might be built near the Annex or perhaps the new building might be nearer to Rochester. Bill considered the discussion very successful and plans another membership meeting next year.

Other activities were a visit to the AWA Museum and Annex, Book Fair, three auctions, Old Equipment Contest, Awards Banquet and two luncheons. A full four-day schedule indeed! I arrived Tuesday evening and finally left Saturday afternoon.

## *Parking and Security*

If you have ever been to the AWA Fall Meet, you know there is always a shortage of parking for buyers. I arrived at 6:00 a.m. Wednesday and had to park in an illegal spot. It reached the point that it was necessary to run a shuttle bus from the meet to all of the local motels. I personally timed the trip and found that the shuttles were making a complete loop every ten minutes. That is pretty good service but there were still a few complaints by buyers who had to lug large heavy purchases all the way to the bus and then from the bus to their motel rooms. The AWA was attempting to make the best possible use of the facilities available at the Marriott. As soon as parking spaces were available, cars were again allowed entry into the lot. The shuttles continued to return people to their motels as long as there were members requiring the service.

Another difference this year was the tighter enforcement of our "members only" policy for attendance of flea market or other activities without being a registered AWA member. This was of no consequence to *bona fide* club members, but there was plenty of complaining from those who had been able to sneak in free during previous years. In prior years, meet attendance averaged 900; this year it was well over 1,1000. The increase is due, at least in part, to the fact that we are better enforcing our policies. This is a costly event to run and the profits are a very important source of revenue to the AWA.

## *The Auction Scene*

Four items in the auction brought bids over $1,000. Tops was a bid of $2,200 for a Japanese WWII man pack receiver with the extra coils. Second was a $1,300 bid for a yellow and black Addison model 5E radio in mint condition. A one-of-a-kind Westinghouse receiver used by Admiral Byrd on his 1927 expedition sold for $1,150. A Western Electric #4D station monitor receiver without tubes brought $1,100.

This was definitely an auction for Crosley collectors. There were three Crosley Pups, all complete and GC. If you wanted one with the original box the price was $520. The second set (VGC) was sold with a single bid of $300. That high opening bid must have been good strategy because, later, the third set (GC, works) sold for $410!

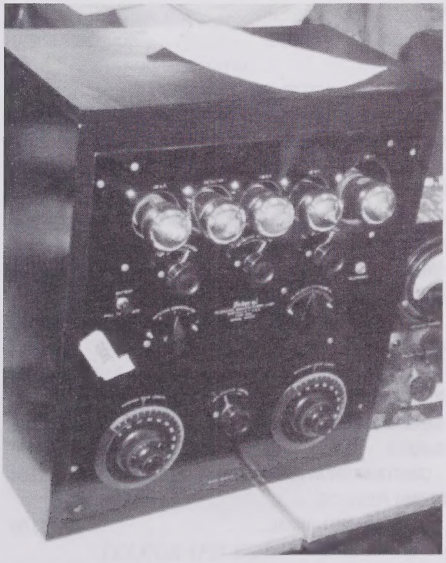
Crosley collectors know the rarity of sets with wooden book condensers and porcelain sockets. I don't recall ever seeing one for sale. Yet here there were three! The first was a Crosley V. It went unsold in the parking lot for $175. Here it brought $160, a bargain price. Another two-tube Crosley (with *two* condensers and sockets) brought $380. Finally the best Crosley piece, a

*Curator Ed Gable at the large rotary spark transmitter on the museum's third floor.*

Harko Senior with separate two-step amplifier, went for $600. I wish I had them!

Four Philco cathedrals were sold at prices ranging from $450 for an excellent #90 (refinished too shiny) down to $120 for a model 50A.

A Model 200 Federal panel set with 5 brass



*This model 200 Federal panel radio was intended for installation in a phono cabinet and originally sold bare. It found no takers at the auction (minimum bid, $1,350) even though the seller had built a beautiful demonstration cabinet.*

base 01As was offered for a $1,350 minimum. These sets were intended to be installed in a phonograph cabinet and were usually sold with no cabinet. However, this radio had a beautiful cabinet (new construction) which allowed the set to be displayed with the panel vertical. The usual selling price for this model is about $300, so there were no takers.

There were four AK Model 10 breadboards in the auction. Three were GC, complete, and sold in the $725 to $800 range. The fourth had no tags and no wires under the board. It brought $450.

I can remember when I decided that three-knob TRF sets were too common and got rid of all of mine including the Grebe synchrophase (but not the AK breadboards). I got $100 for the Synchrophase. Here one sold for $270 with the tubes and working. I should have kept mine. A Kodel one-tube receiver, VGC brought $460. A Radiola 25 complete and working with the loop (F/GC) only brought $140. I am always discouraged to see these nice historical sets passed up in favor of newer "pretty" sets. A Tuska 225, VG & working, sold for $310. Another, with the amplifier, received a $350 bid. I bought my Western Electric #7A three-tube amp for $100 with the tubes some time ago. Here one sold for $300 without any tubes.

About a dozen console radios were auctioned. The top price paid was $160 for a Radiola VIII, VGC, no rear cover. Next was $100 paid for a Philco with wireless remote control but without the remote box. A Philco 90 console, GC, brought only $45 and a nice Zenith 8S563X, VGC, was purchased by the auctioneer for $85.

There were three separate auctions this year. The communication auction was held Thursday morning and the tube auction Thursday evening. Duration of the three totaled about 8 hours. Total sales for the general auction alone were about $38,297. That does not include the tube auction. In New York State sellers are not allowed to bid and buy back their own merchandise. The price given is the actual price of everything sold. This was quite a lot more than any other radio meet

*(continued on page 23)*

# AWA Conference Auction Report

*Sale prices for selected items from the AWA 1999 Conference auction records. Every attempt has been made to ensure accuracy in reporting these results, but the AWA cannot assume responsibility for any errors that may occur.*

## *ADVERTISING AND PROMOTIONAL ITEMS*

| | | |
|---|---|---|
| BENDIX | RADIO NEON SIGN MISSING FEW LETTERS | $270.00 |
| PHILCO | LIGHTED ADVERTISING SIGN | $27.50 |
| | RADIO SERVICE SIGN | $200.00 |
| | GLASS ADVERTISING SIGN | $40.00 |
| | ADVERTISING SIGN | $35.00 |
| | ADVERTISING SIGN | $50.00 |
| RCA | THREE SECTION WALL DISPLAY | $260.00 |
| | RADIO TUBE SIGN | $32.50 |
| | RADIO SHIPS AT SEA FLYER WITH MAP OF MARINE SHORE STATIONS | $20.00 |
| | RADIOTRON TUBE ADV., FRAMED | $10.00 |
| | RADIOTRON TUBE ADV, 1926, FRAMED | $5.00 |
| | RADIOTRON ADV., WD-11/WD-12, 1924 NATION | |
| | GEO. MAG. | $12.50 |
| UNKNOWN | POSTER, DANCING WITH DORSEY | $5.00 |
| | EDISION COMMEM. BLUE CLOTH BANNER 32" × 45" | $210.00 |

## *BOOKS AND MAGAZINES*

| | | |
|---|---|---|
| ALLIED | 1929 RADIO CATALOG | $22.00 |
| AMERICAN ELECTRO | | |
| | 1922 RADIO CATALOG, 48 PAGES | $32.50 |
| ANTIQUE RADIO CLASSIFIED | | |
| | 171 ISSUES, OCT'84-DEC'99 | $22.50 |
| ARRL | 1929 RADIO AMATEURS HANDBOOK | $55.00 |
| | 1936 AMATEUR HANDBOOK, QST JULY AND AUG 1930 | $25.00 |
| AUDELS | NEW ELECTRIC LIBRARY, ALL BUT VOL. 7 | $11.00 |
| BELL LABS | MAGAZINES AND LAB TIME NOTEBOOK, 31 BOOKS | $65.00 |
| BEUITT | TRANSISTORS HANDBOOK 1956 | $10.00 |
| BIG-LITTLE BOOKS | | |
| | RADIO PATROL | $19.00 |
| | CALL W1XYZ | $22.00 |
| BRIDE | OUT OF THE AIR | $7.00 |
| BUCHER | WIRELESS TELEGRAPHY (1917) | $20.00 |
| R. CLARK | EDISON | $11.00 |
| CROSLEY | 1929-1937 CROSLEY SERVICE MANUAL | $25.00 |
| DETUNZELMANN | | |
| | WIRELESS TELEGRAPHY, FIRST ED. 1901 | $170.00 |
| DUGAN | THE GREAT IRON SHIP, 1933 | $20.00 |
| EDITORS AND ENGINEERS | | |
| | RADIO HANDBOOK 8TH EDITION, 1941 | $8.00 |
| GE | SERVICE NOTICES 1935-1939 | $30.00 |
| GERNSBACK | RADIO NEWS, APRIL 1922, SEPT 1922, OCT 1922 | $17.50 |
| | RADIO NEWS, JAN 1923, MARCH 1923, AUG 1924 | $17.50 |
| GHIRARDI | | |
| | 1941 RADIO TROUBLE SHOOTERS HANDBOOK | $15.00 |
| GRIGSBY-GRUNOW | | |
| | MANUAL FOR MODELS 91 AND 92 MAJESTIC | $2.00 |
| MACLISTER | | |
| | STANDBY | $17.50 |
| MARCONI WIRELESS TELEGRAPH CO. | | |
| | TRAFFIC RULES AND REGULATIONS, 1917 | $210.00 |
| W. MARCUS | | |
| | ELEMENTS OF RADIO | $1.00 |
| MIXED | | |
| | BOX OF HANDBOOKS, ARRL 43, 49, 57, 62, MORE | $20.00 |
| MIXED | | |
| | 22 ISSUES RADIO NEWS, TYNE "SAGA OF V. TUBE" | $50.00 |
| MORGAN | | |
| | EXPERIMENTAL WIRELESS CONSTRUCTION, 1919 | $12.50 |
| NRI | | |
| | SERVICE MANUALS (3) | $22.50 |
| PHILCO | | |
| | SERVICE NOTES FROM 1947-1949 | $4.00 |
| | SERVICE NOTES 1947/1948/1949 | $4.00 |
| POPULAR SCIENCE PUBLISHING CO. | | |
| | RADIO FOR THE MILLIONS | $6.00 |
| RADOVSKY | | |
| | ALEXANDER POPOV-INVENTOR OF RADIO, 1937 | $65.00 |
| RADIO AMATEUR CALL BOOK | | |
| | APRIL 1948 | $9.00 |
| RCA & GE | | |
| | HAM TIPS, 79 BULLETINS, 1947-1958 | $22.50 |
| J.G. SAXE | | |
| | SAXE'S POEMS | $22.00 |
| SCIENTIFIC AMERICAN | | |
| | 9 MAGAZINES, 1915-1923 | $22.50 |
| SLEEPER | | |
| | CONSTRUCTION OF RADIOPHONE & TELE. RCVRS 1922 | $25.00 |
| STUART PRODUCTS | | |
| | STUART RADIO MANUAL | $3.00 |
| H.B. SUMMERS | | |
| | RADIO CENSORSHIP, 1939 | $10.00 |
| TUSKA | | |
| | INVENTORS AND INVENTIONS | $35.00 |
| UNKNOWN | | |

NOT JUST A SOUND, HISTORY OF RADIO STATION WLW .$17.50
OFFICAL RADIO MANUAL, PRE-RIDER .....$10.00
1922 CONSOLIDATED RADIO CALL COOK .....$37.50
1997 AMATEUR CALLBOOK, LAST BEFORE CD-ROM
MODERN ELECTRONICS OCT 1910, NOV 1910 .....$15.00
AUDIO AMPLIFIERS & ASSOCIATED EQUIPT., VOL 1 .....$15.00
THE GREAT IRON SHIP, STORY OF LAYING OF THE CABLE ..$50.00
BOB HOPE IN ALL HIS GLORY, STORY OF WILLIAM
PALEY/CBS .....$3.00

WESTERN ELECTRIC
OVER 1000 PAGES, COMPILATION OF TUBE SPECS ....$290.00

WILLIAMS
1922 PRACTICAL RADIO, GOOD CONDITION .....$17.50

J. WOODFIN
OF MIKES AND MEN .....$6.00

## *COILS*

MIXED 5 DEFOREST AND 5 UNKNOWN COILS .....$70.00

NORDEN-HAUCK
7 SHORT WAVE COILS FOR ADMIRALTY 15 ...$30.00

## *TEST EQUIPMENT*

AEROVOX CAPACITANCE/RESISTANCE BRIDGE .....$25.00

BALLANTINE
MODEL 300 AC VOLT METER .....$10.00

BEEDE 1920s RADIO TESTER, 3 METERS .....$42.50

CENTURY FC-2 TUBE TESTER, OAK CASE, MANUALS ....$17.50

JEWELL JUNIOR TUBE CHECKER NEW IN
ORIGINAL BOX .....$50.00

LEEDS-NORTHROP
TEST SET I-49 (5430-A) .....$25.00
MODEL K2, SERIAL NO. 682437 .....$24.00

OXFORD-TARTAIL RADIO CO.
MODEL CT-400 CAPACTOR ANALYZER .....$65.00
CT-400 CAPACITOR ANALYZER .....$9.00

PRECISION APARATUS CO.
E-20, E-400, EV-10A, ES-500, 910 .....$40.00

RAULAND MODEL IG36 TEST SET SCR 522/524 .....$15.00

READRITE Model 431 IN OAK CASE .....$65.00

RCA WO-91A SCOPE .....$35.00

SALKSON TVG-1, TV-FM SIGNAL GENERATOR,
ORIGINAL MANUAL .....$27.50

SANDWICH POLE CHANGER CO.
ILLINOIS DIRECT READING OHMMETER .....$45.00

SIMPSON I-177-B TUBE TESTER WITH DATA BOOK ....$110.00

SUPERIOR TV-50A SIGNAL GENERATOR .....$8.00

SUPREME 400B TEST SET WITH TUBES, OSC COIL AND
MANUAL .....$55.00

## *TELEGRAPH EQUIPMENT*

J.H.BUNNELL AND COMPANY
TYPE (2-11) TELEGRAPH RELAY .....$10.00

C GERHART PRUSSIAN MODEL 1859 KEY .....$750.00

F.A. GAMEWELL TELEGRAPH CO.
MORSE CODE TAPE SPOOLER, HANDLES FOUR
TAPES .....$130.00

JAPANESE PRE-WWII WIRELESS TELEGRAPHY KEY ....$100.00

KNAPP KNAPP ELECTRIC QUESTIONER GAME .....$27.50

LIONEL TELEGRAPH KEY, MODEL J-38, ORIGINAL BOX ..$50.00

MCELROY DELUXE KEY, MARBELIZED BASE,
MINT CONDITION .....$375.00

UNKNOWN WESTERN UNION CODE PRACTICE SET, NIB ..$32.50
BOMBER AIRCRAFT KEY, "THE BATHTUB" ....$60.00
TRAINING KEY, POST WWI .....$110.00
STANDARD EUROPEAN TELEGRAPH RELAYS $140.00
GERMAN/AUSTRIAN TELEGRAPH KEY .....$160.00

## *MICROPHONES*

ASTATIC MODEL 77A .....$130.00

AUTOMATIC ELECTRIC
AE MICROPHONE .....$27.50

ELECTRO VOICE
MODEL 719 .....$15.00

LIFETIME MODEL 8 .....$50.00

RCA MODEL 74A VOLOCITY JUNIOR .....$750.00
MODEL 91C .....$475.00

SHURE/SUPERSCOPE
2 MICS, SUPERSCOPE CONDENSER,
SHURE DYNAMIC .....$25.00

TELPHONICS
MODEL RS-38A .....$3.00

TURNER MODEL 5X .....$290.00

UNKNOWN LITTLE WONDER .....$30.00
USED BY CBS AT LILLEHAMMER OLYMICS ..$50.00

## *OTHER EQUIPMENT*

CURRIER AND IVES
ORIGINAL PRINT, STEAM SHIP
GREAT EASTERN .....$100.00

DURABLE TOY AND NOVELTY CO.
RADIO QUESTIONNAIRE GAME .....$27.50

FISHER MODEL X-100-B INTEGRATED AMPLIFIER ....$15.00

FRENCH MOTOR/GENERATOR, 110VAC MOTOR,
DC GENERATOR .....$180.00

FRITZ SARAN, HALBERSTADT, GERMANY
WIMSHURST MACHINE .....$350.00

KELLOGG FIELD TELEPHONE MODEL 1917
SIGNAL CORPS .....$55.00

MCINTOSCH MODEL MC30 AMPLIFIER .....$220.00

MORRIS COIL WINDER WITH ACCESSORIES .....$85.00

NUMECHRON
TV CLOCK, MODEL 700 (1957) .....$22.50

OKI ELECTIC CO. LTD.
PORTABLE TEST TELEPHONE, TYPE 4 .....$27.50

OPERADIO MOVIE THEATRE AMP MODEL 1152B .....$60.00

PILOT FM MULTIPLEX STEREO TUNER,
MULLARD TUBES .....$70.00

| | | |
|---|---|---|
| RCA | AMPLIFIER CAGE | $130.00 |
| RCA VICTOR | | |
| | PHONOGRAPH MODEL 9EY3 | $25.00 |
| RED STAR | PICTURE, INDOOR ANTENNA | $170.00 |
| SANDAR | CONE SPEAKER | $80.00 |
| STEINITE | RADIO SHIPPING BOX | $10.00 |
| STROMBERG-CARLSON | | |
| | MODEL AU-64 PA AMPLIFIER | $17.50 |
| THORDARSON | | |
| | TYPE A, 1 KVA TRANSFORMER | $180.00 |
| VICTOR | MORSE TELEGRAPH RECORDS | $17.50 |
| WESTERN ELECTRIC | | |
| | CATHOR-TRONIC AUDIOPHONE | $27.50 |
| | TWO VOLUMES OF 1914-1936 RADIO PATENTS | $110.00 |
| | AMPLIFIER, MODEL 7-A | $300.00 |
| WINCHARGER CORP. | | |
| | PE-101-C DYNAMOTOR UNIT | $5.00 |
| ZENITH | EARLY ZENITH HEADPHONE DISPLAY WITH HEADPHONES | $37.50 |

## *PARTS*

| | | |
|---|---|---|
| EDISON | BATTERY JAR | $30.00 |
| ELECTRO IMPORTING CO. | | |
| | COIL, PICTURED IN VINTAGE RADIO | $40.00 |
| HAWKEYE RADIO CO. | | |
| | REEL AERIAL | $20.00 |
| MILITARY | ANTENNA AN-29-C | $30.00 |
| RCA | EARLY TRANSFORMER, MODEL UP-1016 | $10.00 |

## *RECEIVERS*

| | | |
|---|---|---|
| 4 STAR | PIANO RADIO | $75.00 |
| AC DAYTON | MODEL 06 | $20.00 |
| ADDISON | MODEL 5E CATALIN | $1,300.00 |
| AIRLINE | MODEL ? IN ORIGINAL SHIPPING CRATE | $130 |
| AIRWAY | MODEL 61 | $45.00 |
| AMERICAN BOSCH | | |
| | MODEL 205 | $30.00 |
| APEX | UNUSUAL CONSOLE, NEEDS EXTERNAL SPEAKER | $42.50 |
| ATWATER-KENT | | |
| | MODEL 55 | $27.50 |
| | MODEL 10 BREADBOARD | $700.00 |
| | MODEL 37 WITH MODEL E SPEAKER | $85.00 |
| | BREADBOARD | $450.00 |
| | MODEL 32 | $110.00 |
| | MODEL 20 WITH TUBES | $37.50 |
| | MODEL 70 | $55.00 |
| | MODEL 10 BREADBOARD | $750.00 |
| | MODEL 10-A BREADBOARD | $800.00 |
| | MODEL 46 WITH TYPE F2 SPEAKER | $60.00 |
| BRANDES | MODEL B10 | $100.00 |
| BROWNING DRAKE | | |
| | MODEL 5R W/ ORIGINAL INFO ON INSIDE LID | $45.00 |
| BRUNSWICK | MODEL 5KR | $45.00 |
| CAMUS | TRANSISTOR BOTTLE RADIO IN ORIGINAL BOX | $15.00 |
| CANADIAN MARCONI | | |
| | MODEL 15, REFINISHED CABINET | $35.00 |
| CROSLEY | MODEL 3R3 | $25.00 |
| | CROSLEY PUP WITH BOX | $520.00 |
| | MODEL 51 | $60.00 |
| | MODEL 10135 | $75.00 |
| | MODEL 5 | $160.00 |
| | CROSLEY PUP, FULL LABEL ON BOTTOM | $410.00 |
| | MODEL VI, OLD STYLE W/ PORCELIAN SOCKETS; | $380.00 |
| | MODEL 175, 14 TUBE CONSOLE | $5.00 |
| | HARKO SENIOR, GOOD AUDIO TRANSFORMER | $600.00 |
| | CROSLEY PUP WITH UV201, WORKS WELL | $300.00 |
| DEFOREST | ASSEMBLED KIT | $250.00 |
| EMPRESS | MODEL 55 | $120.00 |
| EVEREADY | MODEL 1 | $100.00 |
| FADA | 5 TUBE "NEUTROLETTE" | $75.00 |
| FARNSWORTH | | |
| | GT-060 BAKELITE RECEIVER | $30.00 |
| | AT-50 PLUS UNKNOWN RCVR | $25.00 |
| FREED EISEMANN | | |
| | NR-12 | $100.00 |
| | FE 18 | $65.00 |
| GE | MODEL C2440 | $20.00 |
| | MODEL 81-E | $60.00 |
| | MODEL L 740 RECEIVER, SHORTWAVE | $20.00 |
| | MODEL S-22, PLAYS BUT HUMS | $100.00 |
| GERMAN/AUSTRIAN | | |
| | 3 BAND WWII PORTABLE 12 VOLT OR 110/220 VAC | $210.00 |
| GREBE | MODEL MU-1 WITH GOOD TUBES | $270.00 |
| GRUNDIG | MODEL 2440-U | $60.00 |
| GUTHRIE | 1924 NIGHTINGALE JR | $470.00 |
| HALLICRAFTERS | | |
| | MODEL SX-24 RECEIVER WITH MATCHING SPEAKER | $90.00 |
| | MODEL TW-1000 | $45.00 |
| | MODEL S-40B | $40.00 |
| | CLEAR LUCITE, PRINTED CIRCUIT DEMO RADIO | $200.00 |
| HAMMARLUND-ROBERTS | | |
| | MODEL HI-Q | $170.00 |
| HOMEBREW | CRYSTAL SET IN SEWING BOX, MISSING GALENA | $160.00 |
| | 3 TUBER WITH 01As | $50.00 |
| JAPANESE | WWII RECEIVER, MODEL 3010? WITH COILS | $2,220.00 |
| JNG. NIKOLAUS ELTZ | | |
| | 3 BAND GERMAN SET CIRCA 1940 | $130.00 |
| KENNEDY | MODEL XXX, NO CABINET | $70.00 |
| KING | MODEL 81 | $30.00 |
| KODEL | ONE TUBER | $460,00 |

| | | |
|---|---|---|
| MARCONI | MODEL 118 | $65.00 |
| MCMICHAEL LEN | | |
| | "SUPERSONIC" WITH 5 VALVES | $290.00 |
| METRODYNE | | |
| | FANCY PANEL SET | $120.00 |
| MICRO | MODEL TM-2 | $80.00 |
| MITCHELL | "LULLABY" | $30.00 |
| MIXED | 6 TRANSITOR SETS | $5.00 |
| | EMERSON PORTABLE, TRUTONE PORTABLE, | |
| | PHONE RADIO | $32.50 |
| MOTOROLA | MODEL 5T | $50.00 |
| NEMS-CLARKE | | |
| | MODEL 1302A (FM) | $50.00 |
| NORTHERN ELECTRIC | | |
| | MODEL 5110 - RAINBOW | $55.00 |
| | MODEL R-11 WITH R-15 AMPLIFIER | $360.00 |
| PHILCO | MODEL 71 | $160.00 |
| | MODEL 49-901 SECRETARYS RADIO | $50.00 |
| | MODEL 511 | $40.00 |
| | MODEL 54 | $65.00 |
| | MODEL 40-145 | $37.50 |
| | MODEL 90 CONSOLE | $45.00 |
| | MODEL 48-206 LEATHERETTE TABLE | $20.00 |
| | MODEL 40-201XX CONSOLE RECEIVER | $100.00 |
| | MODEL 50A | $120.00 |
| | MODEL 38-116 CONSOLE, MISSING ONE | |
| | SPEAKER | $90.00 |
| | MODEL 91 | $205.00 |
| | MODEL 90 | $450.00 |
| | MODEL 20 | $80.00 |
| | MODEL 42-32 RECEIVER | $30.00 |
| PILOT | AC SUPER WASP | $200.00 |
| PIONEER | MODEL SM-B200A | $20.00 |
| RADIOCAPTE? | | |
| | UNKNOWN RECEIVER | $400.00 |
| RCA | RADIOLA, 2 STAGE AUDIO AMP, AC TYPE | $310.00 |
| | RADIOLA MODEL 25 + LOOP ANTENNA | $140.00 |
| | RADIOLA MODEL V | $200.00 |
| | RADIOLA VIII, MISSING BACK COVER | $160.00 |
| | RADIOLA V, MISSING TOP COVER | $110.00 |
| | RADIOLA 60 | $42.50 |
| | RADIOLA II WITH GOOD AUDIO | |
| | TRANSFORMER | $45.00 |
| | RADIOLA 44 | $40.00 |
| | RADIOLA II | $190.00 |
| | RADIO DIRECTION FINDER, MODEL AR-8711 | $35.00 |
| | MODEL A-20 | $45.00 |
| | RADIOLA MODEL 33 WITH SPEAKER | $27.50 |
| RCA VICTOR | | |
| | ACR-136 | $140.00 |
| ROSS | MICRO-EIGHT TRANSISTOR WTH CHAIN | |
| | AND CASE | $12.00 |
| RTH TWIN DETECTOR | | |
| | TWIN DETECTOR CRYSTAL RECEIVER | $340.00 |
| SILVER-MARSHALL | | |
| | IMPROVED SHIELDED LABORTORY | |
| | MODEL RECEIVER | $160.00 |
| SILVERTONE | MODEL 110-448 WOOD CASE TABLE | |
| | MODEL RECEIVER | $25.00 |
| SONORN | MODEL 301A | $450.00 |
| SPARTON | MODEL 15 CONSOLE | $85.00 |
| STASSFURTER, RUNDFUNK | | |
| | VOLKSEMPHANGER VE 301 DYN | $320.00 |
| TRANSCONTINENTAL | | |
| | 1 TUBE SET | $70.00 |
| TRUETONE | MODEL "JR" | $220.00 |
| TUSKA | EARLY MODEL 225 | $350.00 |
| | MODEL 225 | $310.00 |
| UNKNOWN | CRYSTAL SET, SIMILAR TO BUSCO | $210.00 |
| | XTAL RECEIVER WITH 2 01A AMPLIFIERS | $100.00 |
| | GRANDFATHER CLOCK TRANSISTOR RADIO | $42.50 |
| US RADIO AND TV | | |
| | GLORITONE MODEL 99A SUPERHET | $85.00 |
| VICTOR | 1924 SUPERHET, 8 01As (NO TUBES) | $150.00 |
| WALKER | MULTI UNIT RECEIVER | $75.00 |
| WESTERN-ELECTRIC | | |
| | MODEL 4-D USED AS STATION MONITOR | |
| | FOR WFLA | $1,100.00 |
| WESTINGHOUSE | | |
| | ADMIRAL BYRD RECEIVER, 1927 | $1,150.00 |
| WILSON CO. | | |
| | R.C.A.F. BUZZER SET | $30.00 |
| WORLD | CRYSTAL RECEIVER | $90.00 |
| ZENITH | MODEL 60414-W, (1940) | $75.00 |
| | ROYAL 755U RECEIVER | $15.00 |
| | TRANS-OCEANIC MODEL 8G005, WORKING | $47.50 |
| | MODEL 5J41 PORTABLE RECEIVER, | |
| | AC/BATTERY | $65.00 |
| | MODEL 8553X RECEIVER | $85.00 |
| | H-500 TRANSOCEANIC RECEIVER | $27.50 |
| | MODEL 6DG10W | $22.50 |
| | TOMBSTONE N641932 | $150.00 |

## *SPEAKERS*

| | | |
|---|---|---|
| ATWATER KENT | | |
| | MODEL M SPEAKER,TWO DRIVERS, | |
| | ONE OPEN, ONE GOOD | $60.00 |
| JENSEN | 1930s THEATRE REPRODUCER, | |
| | DURALUMINUM DIAPHRAM | $10.00 |
| | MODEL A-12 CONCERT DYNAMIC SPEAPER | $50.00 |
| MAGNAVOX | HORN SPEAKER, BASE NOT ORIGINAL | $60.00 |
| PEERLESS | MODEL UNKNOWN | $20.00 |
| PHILCO | EXTERNAL SPEAKER | $60.00 |
| STERLING | "BABY" SPEAKER | $260.00 |
| UNKNOWN | SET OF BOOKS SPEAKER "MARK TWAIN" | $35.00 |

## *TUBES*

| | | |
|---|---|---|
| AEG (GERMAN) | | |
| | K6 (TRIODE), CIRCA 1918, GOOD FILAMENT | $100.00 |
| AMPEREX | TC4-3 | $60.00 |

| | | |
|---|---|---|
| | C-100A EXTERNAL GRID | $140.00 |
| AMRAD | DUO XTAL DETECTOR AND MAGNETIC DETECTOR | $750.00 |
| | S-4000 | $30.00 |
| ARCTURUS | 5 BLUE TUBES | $90.00 |
| | 6 BLUE TUBES, ALL TESTED GOOD | $45.00 |
| | TYPE 26 BLUE TUBE, AC DETECTOR | $10.00 |
| | 145, FILAMENT OK | $10.00 |
| BBT | WD11, OPEN FILAMENT | $11.00 |
| DAVEN | AC-15 TUBE, GOOD FILAMENT | $15.00 |
| DEFOREST | SPHERICAL AUDION, LABEL ON TUBE | $500.00 |
| | OV3, GOOD FILAMENT HAS ORIGINAL STICKER | $40.00 |
| | VIS-ION 601 | $160.00 |
| DUOVAC | TUNE-A-LITE, 1ST MAGIC EYE TUBE | $35.00 |
| EIMAC | 50T | $20.00 |
| | 152-T | $35.00 |
| | RX-21 RECTIFIER, GOOD FILAMENT | $5.00 |
| FEDERAL | F7779 | $30.00 |
| GE | 2E25A (2), NEW IN BOXES | $2.00 |
| | 809 (2), ONE TESTS GOOD, ONE FAIR | $5.00 |
| | CARTON OF 50 6AX4GTB | $20.00 |
| | 8002 WATER COOLED | $55.00 |
| | TUNGAR BULBS | $1.00 |
| | CHARGER BULBS | $5.00 |
| GERMAN | NAZI WWII HOLAND 1942 TUBE | $20.00 |
| KEN-RAD | 1629/VT138 EYE TUBES (8) | $55.00 |
| MARCONI | TRIODE DET 25, GOOD FILMANET, VT-104 | $30.00 |
| | X81M TUBES (2), NEW IN BOXES | $15.00 |
| | PX4 | $140.00 |
| MAZDA | 1000 WATT LIGHT BULB | $5.00 |
| | MICRO TRIODE, 1926 4 PINS, FILAMENT OK | $20.00 |
| MCCULLOUGH | | |
| | Type 401, FILAMENT GOOD | $20.00 |
| | TYPE 401, FILAMENT GOOD | $16.00 |
| MIXED | 2 GLOBE 50s, 1 RCA, 1 CUNNINGHAM | $130.00 |
| | 45s (9) | $100.00 |
| MIXED | ASSORTED CATKIN TUBES | $50.00 |
| | 4 BRASS BASED TUBES, FILAMENTS OK | $65.00 |
| | 227s (6) by POWERTONE, ARGUS, PIONEER | $120.00 |
| | RCA 8308 & WX 852, RAYTHEON RK-65 | $55.00 |
| MOORHEAD LABORATORIES | | |
| | TYPE "A" | $50.00 |
| MULLARD | 7475 TUBES (3), TWO IN BOXES | $10.00 |
| MULLARD/PHILLIPS/ZENRIX | | |
| | ECC 88 & E 88C, 4 NEW, 9 USED GOOD | $50.00 |
| NORTHERN ELECTRIC | | |
| | R215A, NEW IN BOX | $20.00 |
| PEDERSEN | TRIODE TUBES FROM DENMARK | $55.00 |
| PHILLIPS/MULLARD | | |
| | ECC 81 & ECC 82, NEW IN BOX | $50.00 |
| QRS | QRS TUBE | $35.00 |
| | FOUR RED TOP, GOOD FILAMENT | $140.00 |
| RADIO AUDIO CO. | | |
| | RAC-3 BOTH HARDWARE AND TUBE, NEW | $75.00 |
| RADIOTRON | 808 TUBES (2) | $10.00 |
| | NIB MATCHED PAIR 6L6G | $35.00 |
| | #874M 1927 VOLTAGE REGULATOR | $20.00 |
| RCA | 3 INCH SCOPE, XRAY TUBE | $260.00 |
| | UV211, GOOD FILAMENT | $70.00 |
| | VT-19 | $55.00 |
| | 810 GOOD FILAMENT, W1-460 GOOD FILAMENT | $25.00 |
| | 217C, GOOD FILAMENT | $40.00 |
| | 807 | $7.00 |
| | UV-201-A, BRASS TIP | $30.00 |
| | TYPE 920 DUAL PHOTOCELL | $5.00 |
| | 860, FILAMENT OK | $20.00 |
| | 833, FILAMENT OK | $13.00 |
| RCA CUNNINGHAM | | |
| | 3 CX-301-A TUBES, GOOD FILAMENTS | $15.00 |
| RCA/SYLVANIA | | |
| | 4 6B4G TRIODE TUBES | $60.00 |
| REL | REL 7/4C27 | $13.00 |
| STC | 4282B | $30.00 |
| SYLVANIA | 2A3 MATCHED PAIR | $20.00 |
| | 2A3 XMIT TUBE, SINGLE PLATE | $15.00 |
| | 10Y & VT25 BOTH TEST GOOD | $50.00 |
| | H400U LAMP | $5.00 |
| TAYLOR | T200, FILAMENT OK | $9.00 |
| TELEFUNKEN | | |
| | RS239G TRIODE | $45.00 |
| TOSHIBA/RCA | | |
| | 6G-B8, 7591 | $100.00 |
| UNKNOWN | 6 TUBES, 2 01A, WD11, 199 | $90.00 |
| | BOX OF 401 TOP FILAMENT TUBES, GOOD FILAMENTS | $85.00 |
| | VT1H | $35.00 |
| | 5 BRASS TIPPED LIGHT BULBS | $10.00 |
| | 4 TUNING EYE TUBES | $25.00 |
| | BRASS BASE TIPPED 200 GOOD FILAMENT | $30.00 |
| | BBT 200, NEW IN BOX | $30.00 |
| | UX-199 (6), GOOD FILAMENTS | $30.00 |
| | 6 401s, 5 C-401s, 1 C-484, 1 403, 5 C-323, 3 UNKNOWN | $200.00 |
| | 4 VT-1, GOOD FILAMENTS AND TIPS | $120.00 |
| | WD-11 PLUS SOCKET | $40.00 |
| | VT-25, GOOD FILAMENT | $55.00 |
| | ODD 80 | $3.00 |
| | GEISSLER REPRODUCTION | $100.00 |
| | GEISSLER REPRODUCTION | $170.00 |
| | BBT 201 RAINBOW | $30.00 |
| | 01As (6), GOOD EMISSION | $40.00 |
| | 301A, FILAMENT OK, GOOD EMISSION | $30.00 |
| | 215A (2), 512A (3) | $40.00 |
| WEAGANT | WEAGANT VALVE, OPEN FILAMENT | $70.00 |
| WESTERN ELECTRIC | | |
| | 300-B, TESTED OK | $160.00 |
| | 216A, FILAMENT GOOD | $55.00 |
| | 216A, FILAMENT GOOD | $55.00 |
| | 311B (2), NEW IN BOXES | $10.00 |
| | VT-2 | $50.00 |
| | 272A (2) NEW IN BOXES | $110.00 |
| | VT-2, GOOD FILAMENT | $110.00 |

UNUSED 231D (4) IN ORIG BOX, 271A, GOOD FILS ..... $110.00
102F TRIODE (2) ..... $40.00
RARE 3-PIN TENNIS BALL 201, GOOD FIL .... $130.00
272A TRIODE (2) ..... $65.00
216-A (3), GOOD FILS ..... $130.00
102-A, GOLD TIP OPEN FILAMENT ..... $20.00
W.E. 215-A (2), GOOD FILS ..... $19.00
274A ..... $150.00
725-A, EXTERNAL MAGNETIC MAGNETRON W/ WAVEGUIDE ..... $15.00
216-A (2), GOOD FILAMENTS ..... $45.00
205-D METAL BASE, FILAMENT GOOD ..... $160.00

WESTINGHOUSE
245 (2) TUBES ..... $10.00

### *TRANSMITTERS*

BENDIX — 2 WEATHER BALLON TRANSMITTERS, SUB. MIN TUBES ..... $25.00

MILITARY — MODEL ASB-6 TRANSMITTER ..... $20.00

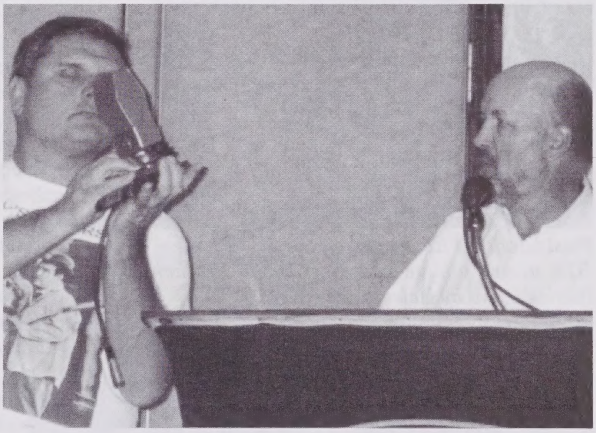
## *CONFERENCE REPORT,* *continued from page 17*

auction I have attended this year. At other meets I had noticed a reduction in the auction sales as a result of dealers selling their merchandise via the Internet. This does not appear to be happening at AWA. The AWA is still a good place to bring your best radio items to sell and you will receive a good price. I counted roughly 300 people in the auction hall. Most were there almost until the auction ended.

While I was standing in line to put my stuff into the auction a member came to me and complained that it took him a half hour to get his stuff entered into the auction. He complained that there was only one table accepting objects for sale and recommended that next year AWA have 2 tables to speed the process. (Actually there *were* 2 tables this year.) I told the guy that, yes, it took a while to get everything placed into the auction and that the problem is that there are never enough volunteers to do everything that needs to be done at the meet.

There were about 12 volunteers working Thursday evening to accept auction items. These guys worked from 3:30 p.m. to 6:30 p.m., ate dinner, and were back to work at the tube auction for a couple of more hours. At the general auction I counted 13 people working to run the event. Again they had to return after dinner to help with the auction payment and pickup. Many other volunteers served throughout the event. I was cornered to help direct traffic and a few other tasks. I wouldn't be surprised if there were as many as one hundred people helping in some way or another at this meet. Yes, some things could be done better. Don't complain. Offer to help!

What I enjoy at these meets the most is the socializing. Do you know that there is a lounge set aside for AWA visitors just inside the rear entrance to the Marriott? A small sign points the way but many do not seem to know the lounge room is available. Look for it next year. I found it to be a good place to eat the lunch I bought outside in the parking lot. It is also a good place to sit and rest and chat with others. Also, did you know that all of the programs presented here are recorded on video tape? If you missed a presentation you might be able to see it later via the video tape. The AWA has around 4,000 members and registration at the conference is about 1,000. That means that most members do not attend the meet and can only know about it by reading this article. For that reason I have made it relatively detailed.



*Auctioneer Walt Buffington (right) did his usual fine job. The RCA mike being offered here brought $475.*

I missed last year's conference due to illness and was very glad that I was able to attend this year. I had a lot of fun and talked with a lot of friends. I hope I can see you there next year.

# AWA Conference Awards Report

*All Photos By Dick Ransley unless otherwise credited.*

## The AWA Recognition Awards

These awards are traditionally presented on the last evening of the conference at the gala "Historical Banquet." Nominations for five of the awards are solicited from the AWA membership at large, and each winner is selected by a special committee charged with administering that particular honor. The five awards and their 1999 winners are:

*President Bill Fizette displays the Bruce Kelley-OTB award plaque just awarded to Brother Patrick Dowd by Helen Kelley (right).*

*James and Felicia Kreuzer receive Houck Preservation award from Vice President Ron Frisbie.*

**The AWA Houck Award for Documentation** goes to an AWA member who has written several original articles on radio development or history in *The OTB, AWA Review*, or other publication. (This can include a book on a related subject.) *Winner: Ludwell Sibley for the documentation of radio history in the book* Tube Lore *and the ongoing material on vacuum tube history.*

**The AWA Houck Award for Preservation** is for a member who, through personal accomplishment, has acquired, and preserved by documenting, an outstanding collection of radio artifacts. *Winner: James and Felicia Kreuzer for the preservation of Marconi radio artifacts in an outstanding collection and display.*

**The Bruce Kelley-OTB Award** is given to the member who publishes in *The OTB* an article judged to be the most outstanding, original, historical presentation of the award year. For this year, articles in the August and November, 1998 and the February and May, 1999 issues were considered. *Winner: Brother Patrick Dowd, W2GK, for his article* "The UV-199" (November, 1998 issue).

**The J. Albert Moore Award** is a newly-instituted companion to the Bruce Kelley-OTB Award. It comes to us through the Antique Radio Club of America, which was merged into AWA a few years ago. The award honors Mr. Moore's contributions to ARCA. As given by the AWA, it recognizes the article, or series of articles, deemed to be the most outstanding of those dealing with radio hardware (radio sets, radio systems or components) printed during the award year. The issues considered are that same as those considered for the Bruce Kelley-OTB Award. *Winner: Richard A. Parks, for his series "Breadboarding."*

**The Taylor Award**, in memory of John Taylor, RCA TV Developer, is for "preserving television history." *Not awarded this year.*

**The Tyne Tube Award** is presented, in re-

membrance of Gerald F.J. Tyne, for contributions to preserving or documenting the history of tube technology. *Winner: Eric Barbour, engineer and writer, for outstanding contributions documenting vacuum tube history.*

The two additional awards traditionally given at the Historical Banquet are:

**The President's Award** for outstanding service to AWA this year went to Millard J. Hoagland, W2SHN, for his constant involvement over the years with AWA nets, and for his unifying activities on behalf of the AWA.

**The Linc Cundall Memorial Award** is presented to the winner of the Linc Cundall Memorial Old-Time CW Contest, who this year was *Bob Raide, W2ZM.*

# 1999 Old Equipment Contest Winners

*Compiled by Contest Coordinator Geoffrey Bourne*

## THE ZENITH THEME CATEGORIES (1 THROUGH 8):

***Category 1. The Early Years***
1st. *Mike and Bob Raide*
*Unused Philco Battery w/ shipping box*

***Category 2. The 1920s***
1st. Peter Yanczer
*Philco Socket Power*

***Category 3. The 1930s***
1st. Robert Lozier
*Philco model 32 32 volt farm set*
2nd. Frank Feczko
*Philco model 39-116 w/ mystery box*

***Category 4. The 1940s***
1st. Robert Lozier
*Philco model 3972, 40-504 and record player*
2nd. Joe Reminder
*Philco model 40-186*

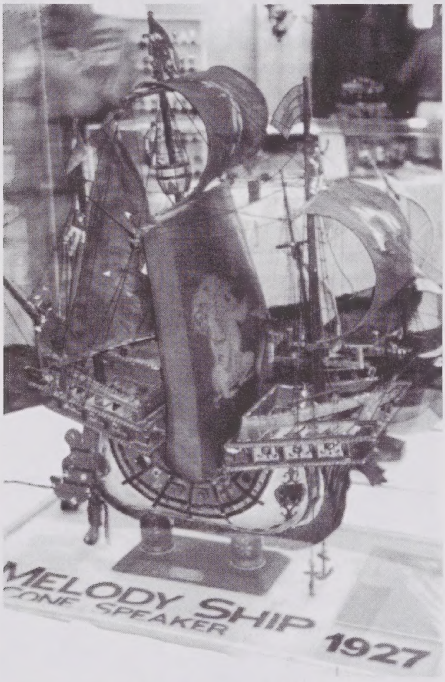
***Category 5.***
**Test Equipment**
1st. Bruce Roloson
*Philco Test Equipment Display*
2nd Clay Siedel
*Philco all purpose tester*
2nd. Fred Crews
*Philco test equipment*
3rd. Mike and Bob Raide
*Philco model 095 IF Generator*

***Category 6. Television***
1st. Fred Rice
*Philco 1953 Experimental Color TV*
2nd. John Garrison
*Philco model 48-2500 Projection TV*
3rd. Peter Graves
*Philco model 48-700 & 48-1000 TV*

***Category 7. Company History***
1st. Chuck Schwark
*Philco Patents & service info*
2nd. Scott MacWilliam
*1929 Philco trade magazines*

***Category 8. Advertising***
**A. Customer Based**
1st. Robert Lozier
*Philco Wall Banner*
2nd. Joe Figliomeni
*Philco Lighted Clock*

*Bruce Roloson's imposing Philco test equipment display won this year's Thompson "Best of Show" award.*




*The "People's Choice" award went to Buford Chidester for his Melody ship speaker entry. (Photo by Larry Babcock)*

3rd. Robert MacIntyre
*Philco Tube Signs*

**B. Dealer Based**

1st. H. P. Bohlander
*Philco Servicemans Briefcase w/ Lit.*
2nd. Frank Feczko
*Philco Service Awards*
3rd. Chuck Schwark
*Evolution of Philco*

## THE STANDARD CATEGORIES (9 THROUGH 22)

### *Category 9. Passive Receivers*

1st. Anders Widell
*Oskar Kring 1926 crystal set*
2nd. William Skaggs
*Purse Crystal Set*
3rd. Fred Crews
*A.C. Gilbert Crystal Set*
Special. Ross Smith
*Homemade loose coupler crystal set*

### *Category 10. 1- and 2-Tube Receivers*

1st. Steve Wallace
*E. A. Gisburne Radio*
2nd. Merrill Bancroft
*SE-AR-DE Receiver w/ box*
3rd. E. J. White
*Walkerite one tube receiver*

### *Category 11. 3-Tube Receivers*

1st. Ernie Hite
*Paragon RA-10, DA-2 and Magnavox Horn*
2nd. Scott MacWilliam
*Harkness Reflex Model C.*
3rd. David Cheney
*United Special Receiver and Amplifier*

### *Category 12. 4- And 5-Tube Receivers*

1st. Tod Prowell
*Grebe RORQ and CR-9*
2nd. Robert Lozier
*Pacemaker model 5155 made in New Zealand*
3rd. Edward White
*Silver Marshall Around the World Receiver*

### *Category 13. Receivers With 6 or More Tubes*

1st. Robert Schaumleffel
*Industrial Radio Service Ultra 401 and Ultra B403 (Meyers Tube Set)*
2nd. Gary Alley
*Radiola AR, RT, DA, RA Set*
3rd. Fred Crews
*Steinite Display*

### *Category 14. Novelty Radios*

1st. John Deloria
*Melody Cruiser Ships and Wings Cigarette*

### *Category 15. Speakers*

**A. Cone**

1st. Buford Chidester
*Two Ships of Melody Speakers*
2nd. John Deloria
*Mayflower Ship Speaker*

**B. Horn**

1st. George Freeman
*Amplifone Speaker*
2nd. Gary Carter
*White Burns Horn Speaker*
3rd. Fred Crews
*Brandes Table Talker*

### *Category 16. Test Equipment*

1st. Merrill Bancroft
*National Oscilloscope*
2nd. Bob Masterson
*Stark Tube Tester*

3rd. Chester Wisner
*Lab Test Equipment*

***Category 17. Spark Transmitters***
1st. Edward J. White
*1909 German Spark Transmitter (Replica)*

***Category 18. Tube Transmitters***
1st. John Rollins
*1934 Gross CW 25*
2nd. Stan Hojnacki
*1931 QST MOPA*
3rd. Ron Lawrence
*1934 Clough Brengle*

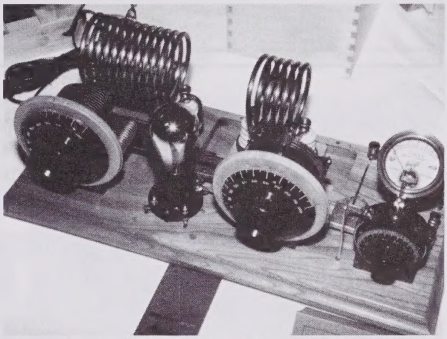
***Category 19. Restoration of Appearance***
1st. Jane Denk
*Shortwave Craft Magazine Trophy*
2nd. Peter Yanczer
*Tom Thumb Camera Radio*

***Category 20. Restoration of Operation***
1st. Joe Reminder
*Philco Model 70*
2nd. Dave Geises
*Use of a refurbished model 70 for interference detection*

***Category 21. New and rebuilt***
1st. Peter Yanczer
*Mirror Screws for Mechanical TV*
2nd. Rick Weber
*Hartley Transmitter*
3rd. John Kelly
*His Last Receiver, a homebrew regen Submitted by his friend John Dilks*

***Category 22. Tubes***
1st. Jim Cross
*RCA Tube Display*
2nd Ludwell Sibley
*British Radar Silica Valve*
3rd. Bengt Svenson
*Two Loewe Multiple Tubes*
3rd. Barney Wooters
*Collection of Brightson Tubes*
Special. Tod Prowell
*Collection of homemade Tubes by Sam Diaz, Dr. Rudiger Waltz and Phil Weingarten.*

***Special Award***
Gary Carter
*Kleertone and Dial Lite Display*



*Stan Hojnacki carried off the "Matlack Transmitter" award wth this beautifully crafted self-excited rig from a 1931 QST.*

## *Major Contest Awards*

EUNICE THOMPSON
"BEST OF SHOW" AWARD
**Bruce Roloson**
*Philco Test Equipment Display*

DISPLAY AWARD
**George Freeman**
*Amplifone Speaker Display*

ELLE CRAFTSMAN AWARD
**John Kelly**
*Last Homebrew Regen*

MATLACK TRANSMITTER AWARD
**Stan Hojnacki**
*1931 QST MOPA*

PEOPLE'S CHOICE AWARD
(decided by visitor's ballot)
**Buford Chidester**
*Two Ships of Melody Speakers*

***Contest Judges***
Chris Bacon
Scott MacWilliam
Ken Owens
Ralph Williams
Geoffrey Bourne

***Special Thanks To***
Elinor Williams

# SELECTED CONTEST

We wish we could show you all 22 of our wonderful first-prize contest exhibits, but here are a few that caught the photographer's eye! Categories in which they were entered are given in parenthesis.

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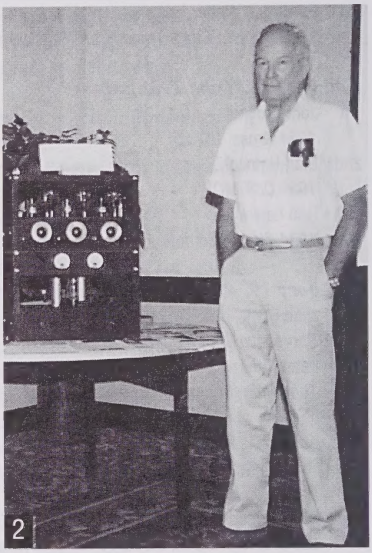
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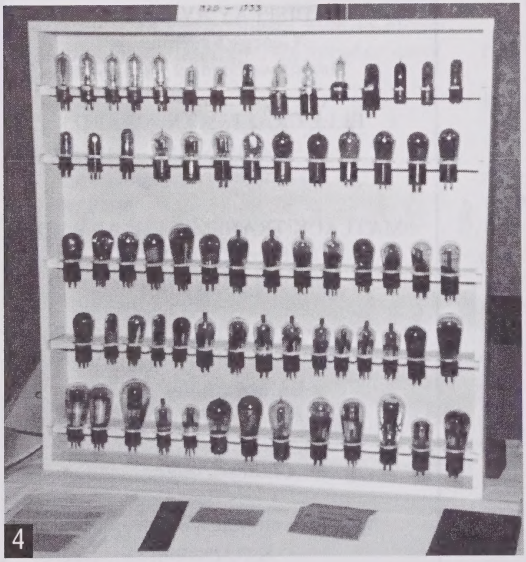
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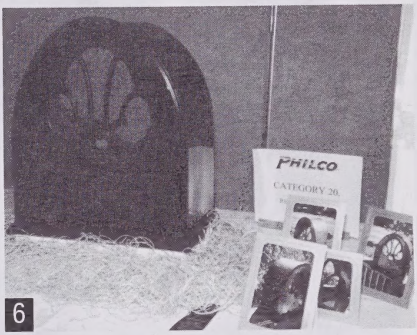
3

Clockwise from top, left:

*1. Home built mirror screws for mechanical TV systems by Peter Yanczer ("New and Rebuilt").*
*2. John Rollins with his restored Gross transmitter ("Tube Transmitters").*
*3. This unusual Model 32 32-volt farm set was Bob Lozier's winning entry. ("The 1930s").*
*4. RCA tube display by Jim Cross ("Tubes").*

# 1ST PRIZE WINNERS

5



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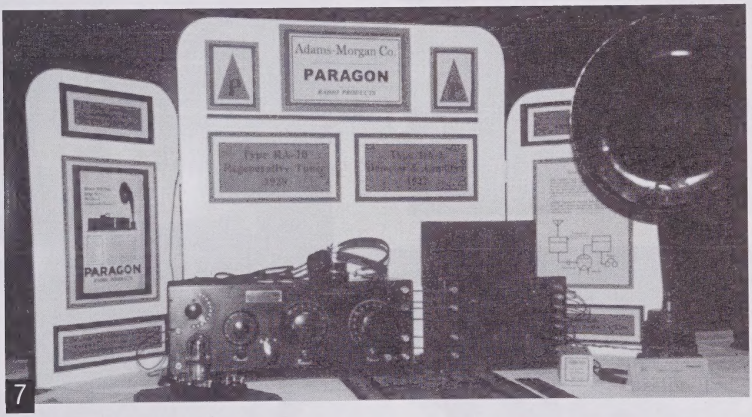

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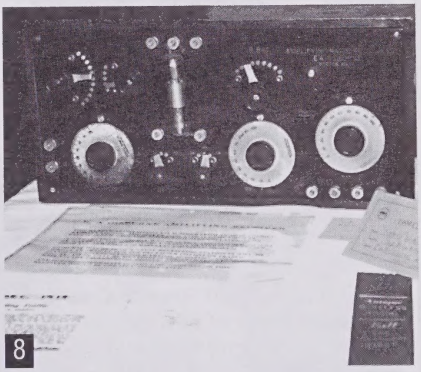
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Clockwise from top, left:

*5. John Deloria's Melody Cruiser Ships and Wings Cigarette display ("Novelty Radios"). (Photo by Larry Babcock)*

*6. Joe Reminder's total restoration of a Philco Model 70 ("Restoration of Operation").*

*7. Paragon RA-10, DA-2 and Magnavox Horn earned Ernie Hite a first ("3-Tube Receivers").*

*8. Steve Wallace's S E. A. Gisburne Radio ("1- and 2-Tube Receivers").*

*9. H. P. Bohlander's display of dealer-oriented literature ("Advertising—Dealer Based").*

# ANNUAL CONFERENCE CANDIDS

◀ *Auction preview was attended by the usual crowd of intensely interested collectors.*

*Mamoru Fujimuro (left) and Bengt Svensson compare notes on the collecting scene in Japan and Sweden.* ▶

◀ *AWA Vice President Ron Frisbie (left) in a serious corridor chat with tube historian, writer, and former* OTB *Editor Lud Sibley.*

*Ralph Williams (left), Atwater Kent expert and author of AWA Review Volume 12, enjoying the contest room with fellow veteran AWA'er John Etter.* ▶

*Truckload of consoles and other goodies hits the asphalt for the perusal of the flea-market crowd. (Photo by Joyce Peckham)*

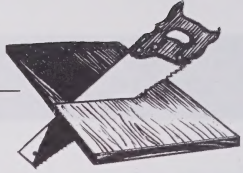
*Marriott food service tent stokes its fires for hungry crowd of flea marketers.*

*Darrell Peckham, brother of AWA director Lauren but not a collector, made the mistake of dropping by for a social call. He was immediately pressed into service by sister-in-law Joyce, our AWA Secretary.*

*You never know what you might find on or under a flea-market table! Here a rare Busy Bee phono shares space with a Philco 20, some plastic sets, and a box of....er.... miscellaneous material. (Photo by Joyce Peckham)*

# BREADBOARDING

EDITED BY **RICHARD A. PARKS**, 2620 LAKE RIDGE CT., OAKTON, VA 22124
*PLEASE INCLUDE SASE FOR REPLY.*



***Bring Historical Circuits to Life On Your Workbench!***

## A Power Supply for Your Breadboarding Projects

Now that we've left the earliest days of wireless behind, we'll need to start breadboarding with tubes, and that means power. Rather than messing with batteries, let's put together a bench supply for some of the tubes we might be using. While we're at it, let's make the unit capable of running a typical three-dialer or other early radio. And let's save money! First, we set the requirements:

A Radiola III uses a pair of WD11s, often replaced nowadays with rebased 864 tubes. These operate with 1.1 volts on the filaments and a typical B supply of +22 1/2, 45, and/or 90 volts. A Crosley 51, still common these days, can use a pair of '01As. These need 5 volts on the filament. Some three-dialer TRFs with five or six tubes need up to +135 volts and a separate negative C supply, too. So the specs for our breadboard will be for four voltages: an isolated A supply variable from about 1.2 to maybe 6 volts, a B supply with two output voltages between +22 and +135 volts, and a C bias supply of anywhere between -3 and -22 volts.

Now, you can buy a fancy supply that does all this for $150 or so from several sources, but then you don't get the fun of building it yourself for next to nothing from your own junkbox. With the help of Radio Shack and one or two sources like Digi-Key (800-344-4539), MPJA (800-652-6733), and the Electronic Goldmine (800-445-0697), the supply I built (Figure 1) cost me less than $25 and a morning's bench time.

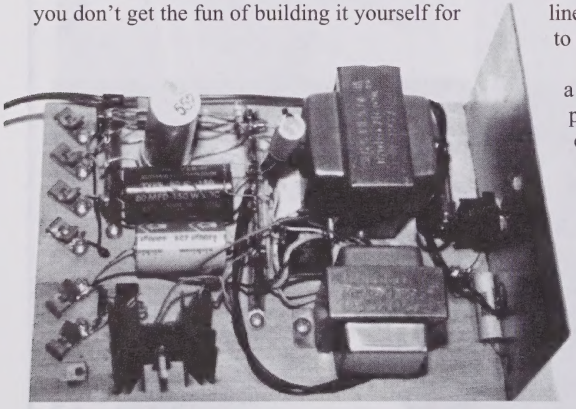


*Fig. 1. If you have a well-stocked junkbox, you should be able to build this supply for about $25.00.*

I built my unit on a pine board six by nine inches, with a piece of copperclad four inches high for a panel. Parts layout isn't critical except for mounting the line-voltage parts where fingers can't get in. A cover over the whole assembly (not shown) makes things even safer.

To maintain isolation from the AC power line—a safety feature everyone should provide—you should use a power transformer. The schematic (Figure 2) shows back-to-back Radio Shack 12-volt transformers: a three-amp unit (273-1511) powers the A supply and a 1.2 amp transformer (273-332A) steps back up to 115 volts for the B and C voltages. I've provided a power switch and a fuse for safety. The schematic shows a two-wire polarized power cord, but a three-wire cord is even better. By placing a .05uF capacitor from the cold side of the line to chassis ground, you'll get an RF ground to the power line, as long as the wiring in your house is up to code.

Pilot lights are fussy, so I just mounted a yellow LED in a hole through the front panel with epoxy. My junk box has plenty of NOS and used terminal strips, and I mounted a collection of new and used filter capacitors between two long strips, while an array of Fahnestock clips (about a dime apiece from Antique Electronics Supply: 602-820-5411) make connections to our future breadboards and other radios.

How much capacitance? Well, if you have an oldtime horn speaker with response down to only 300 Hertz, the B+ filter cap could be as small as 22 uF, but the bigger you make these

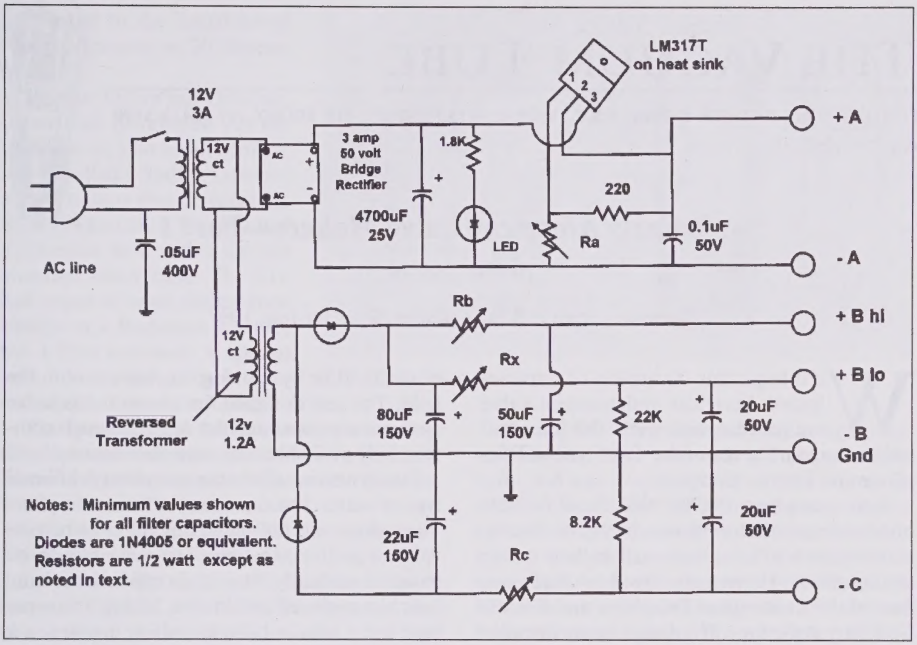



*Fig. 2. Schematic of the supply. High voltage is supplied by 12-volt transformer hooked up in reverse.*

caps, the lower will be the ripple (hum) on the B+ lines. One place not to skimp, though, is the heat sink for the LM317T low-voltage regulator chip; when I drew 1.5 amps (enough for six '01A filaments) of A supply current, the little chip got HOT! I was using a pair of back-to-back U-shaped TO-220 heatsinks from Radio Shack, but still the chip shut down due to heat. The Figure 1 photo shows a better 50-cent finned heatsink from the Electronic Goldmine (part no. G8918). MPJA has it as part no. 11670-HS at 95 cents. You mount the little chip with a screw and wire right to its leads.

To make the A, B, and C voltages adjustable, this supply requires selection of four resistor values: Ra sets the A voltage, Rb will change the higher B supply voltage, Rx changes the lower B voltage, and the value of Rc adjusts the C voltage. Under load, of course, the B voltages will drop, so to set up for particular supply voltages, consult the tables below, remembering that these dropping resistors will heat up according to the formula:

$$\text{Power} = \frac{\text{Voltage drop squared}}{\text{Resistor value (ohms)}} \text{ watts}$$

If you want to substitute potentiometers or rheostats to get variable voltages, best use wire-wound units—carbon pots won't last with DC applied across them.

**TABLE 1: Setting "A" Supply Voltage**

| Fil. Voltage Wanted | Approx. Value for Ra (ohms) |
|---|---|
| 1.2 | Short |
| 2.0 | 135 |
| 2.5 | 220 |
| 3.3 | 390 |
| 5.0 | 680 |
| 6.3 | 910 |

**TABLE 2: Setting "B" (hi) Supply Voltage**

| Wanted | milliamperes | Approx Rb value (ohms) |
|---|---|---|
| 45 | 2.5 (1 tube) | 39k |
| 45 | 5.0 (2 tubes) | 20k |
| 45 | 10 (4 tubes) | 9.1k |
| 45 | 20 | 3.9K |
| 90 | 2.5 | 22K |
| 90 | 5.0 | 10K |
| 90 | 10 | 5.1k 1 Watt |
| 90 | 20 | 2k 2 Watt |
| 135 | 3.0 | 5.1k |
| 135 | 6.0 | 2k |
| 135 | 10 | 1k 1 Watt |
| 135 | 20 | 150 2 Watt |

*(continued on page 36)*

# THE VACUUM TUBE

EDITED BY **BRO. PATRICK DOWD, F.S.C., W2GK**, 4415 POST RD., THE BRONX, NY 10471-3499
*PLEASE INCLUDE SASE FOR REPLY.*

## Some Early American Valve Makers—Part 1

*By Fin Stewart*

Reprinted from H.R.S.A.* *Radio Waves* for July, 1997

We'll begin this discussion of some selected American independent valve manufacturers with the unusual sodium vapour valves of the Connecticut Telephone and Electric Company.

In the years from 1919 to 1927, Dr. H.P.Donle of Meriden, Connecticut was trying to develop valve types which were unusual in their design and operation. He was employed as chief engineer of the Connecticut Telephone and Electric Company at the time. His designs were intended to circumvent the DeForest and Fleming valve patents, as were those of many of his contemporaries. He took out several patents on his valve designs over the years and incorporated these in various circuits. He also wrote several articles for the various radio magazines on his work. His first valves were types A and C, and were mentioned in an article in *Radio Amateur News* in July 1919 and in the October 1919 issue of *QST*.

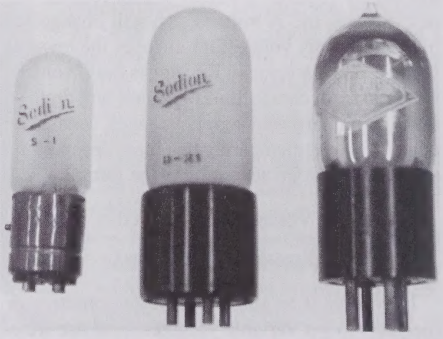
In these valves the filament and grid were contained in an evacuated tubular bulb fitted with a small bayonet base. The plate fitted tightly over this bulb and the idea was that electrolytic conductance through the glass occurred when the filament was heated. In earlier valves an outer "cooling chamber" with an air vent was employed to aid stabilizing of the temperature of the inner glass tube. The C valve was somewhat longer than the A but the same diameter. A version of the valve made a short time later was fitted with a Shaw base and no external cooling mechanism.

The next valve Donle developed was known as the Connecticut J-117 and was designed for a specific detector unit. This valve differed considerably from the earlier types and was gridless. It was basically a diode operated within a coil whose field current set up a magnetic field parallel to the axis of the valve and could only be tuned to a given signal by varying the intensity of the field or by moving the valve within the field. The sets designed for use with this valve were not a success and the design, though commercially available, was soon abandoned.

Donle next worked on a completely different type of valve. This one used sodium as the plate. The sodium was hot and in liquid form when the valve was in operation. The tube had to be mounted vertically, base up. In appearance, it did look like a conventional valve, having a four-pin base and a tubular bulb. However, in practice it was quite different.

The anode, or plate, was connected in the usual manner to the positive of the B battery, in series with head-phones, and one leg of the filament was connected to the rheostat. The other end of the filament was used as an external control coil which was apparently a cup-shaped device in which the end of the valve sat. This was in turn connected to the minus of the A battery, a potentiometer and the minus of the B battery. A U-shaped grid surrounded the lower half of the filament and was connected to the tuning condenser and secondary of a variocoupler.

The valves were designed well but were uneconomical, although some radios were developed to use them. This was mentioned in a paper

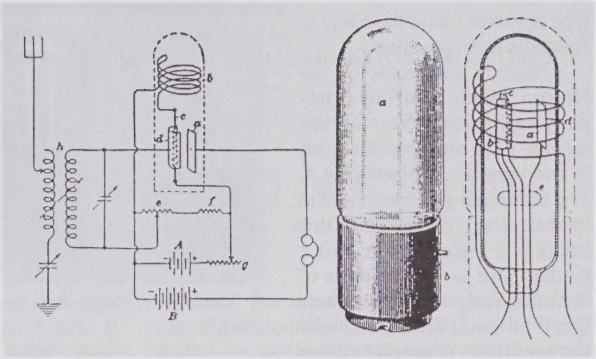



*Left: Sodion S13; Center: Sodion D21; Right: Donle-Bristol B6.*

*HISTORICAL RADIO SOCIETY OF AUSTRALIA

presented to the Institute of Radio Engineers on 20 December 1922.

By the following October, Donle had developed yet another valve, also using sodium. It was called a Sodion Detector and there were four designs: Sll, S13, S14 and D21. The S11 had a spherical bulb with a tip and standard Shaw base. The S13 had a special brass shelled base similar to a Radiotron UV199, but a little narrower. A special socket was needed for it. Special adaptors were available.



*2. Sodion radio circuit.*

The four valves in the series were succeeding developments, but each operated with a five-volt filament drawing a quarter of an amp. A special heater was used to heat the outer surface of the inner glass bulb. Also, the D21 had a tantalum filament and could oscillate, according to *QST* magazine of December 1924. Illustration 1 shows a S13, D21 and the late B6. A typical circuit is shown in illustration 2.

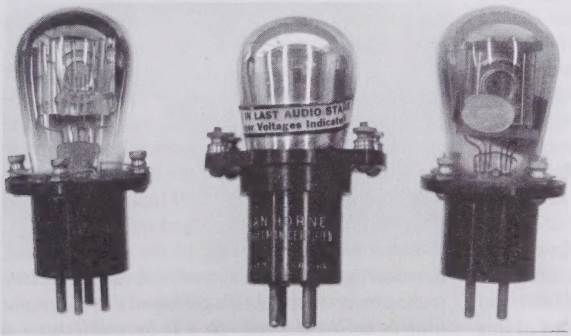
Dr. Donle formed the Donle-Bristol Corporation in 1925, after leaving CT&E, and in the following year had developed a new type of valve. This was called the B6. It was a conventional triode but the bulb contained special gases which had to bc heated. To achieve this, a warming resistor was wrapped around the bottom of the valve inside the base. This valve was extensively covered in the May 1926 issue of *Radio News*.

In the following year Donle introduced the B8, DP10, DP11 and DR-IV. There was also a DP71 power amplifier and a DA2 amplifier valve. These valves, along with the B8, were very similar to the B6 in appearance. Reference material has not given any information on further activities of Donle or his valves.

The V&D Electric Company had an operation in Franklin, Ohio to renew old electric light bulbs and was owned by John S. Van Horne. In 1925 the Van Horne Tube Company was formed to make or sell valves with a different type numbering system than that used by most of the recognised valve manufacturers of the day. Van Horne valves were interchangeable with some of these standard valves. For example: 3VB = W199, 3VBX = UX199, 5VA = W201, 5VAX = UX201-A, 6P = UX210.

The company made a 5VCX which had four additional binding posts on it to allow for connection of additional B and C batteries. One of these is shown in the centre of Illustration 3. The other two valves shown are a Magnatron DC112 on the left and an Airline 171 with amber glass on the right. These two valves operate much the same way as the 5VCX.

Better quality Van Horne valves were sold to A.J.Musselman and Company, which was a sales concern from Chicago, and the valves used in this venture had the name Musselman somewhere on them, either hot-branded on the base or on a paper label on the bulb.

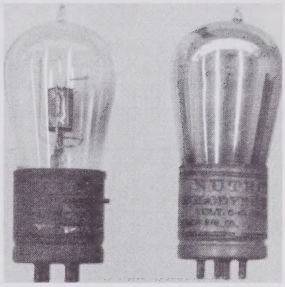


*3. Left: Magnatron DE112; Center: van Horne 5VEX; Right: Airline 171.*

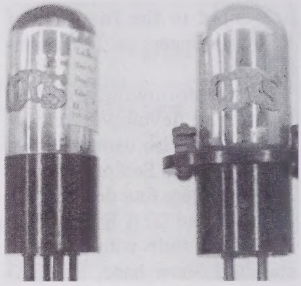
Around June of 1927, Van Horne valves began appearing with conventional numbers as had been devised by RCA. Van Horne discontinued manufacture of the 199 types around this time and also did not make the larger types such as the UX250. These were supplied by the C.E. Manufacturing Company of Providence, Rhode Island. Ceco valves in earlier years had also used a letter as the identification system for their series of valves, such as AUX201-A or Bl99. There were about ten Ceco valves in the letter series. A few

type A valves found their way to Australia in the twenties.

A tetrode was made by the Nutron Manufacturing Company in Passaic, New Jersey around 1925 and this is shown in two versions in illustration 4. The additional grid terminates at the base shell, the whole of this being the terminal and not a binding post as used in some of the other early tetrodes such as the Phillips DVI or Marconi-Osram DE-7. A special socket would have had to be used for these Nutron valves.



*4. Nutron tetrodes-two versions.*



*5. Left: QRS Red Top; Right: QRS power valve.*

The QRS Music Company of Chicago, a well known maker of piano rolls, also made valves for a while in the mid twenties. The best known of these is the Red Top, so named because of the coating of red lacquer on the top of the valve. The base of earlier valves was also made of red bakelite but this was changed to black shortly afterwards. The element assembly consisted of two cylinders surrounding a pair of grids and a pair of filaments. The valve is shown at left in illustration 5.

*Advertisements claimed that this assembly "is perfectly symmetrical in emission and control and this results in a clear tone." A power valve was also made which had two sets of binding posts for extra B and C connections and one of these is also in the illustration. (To be concluded in the next issue of* The OTB*)*

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***BREADBOARDING,*** *continued from page 33*

**TABLE 3: Setting "C" Bias Voltage**

| Wanted | Approx Rc value (ohms) |
|---|---|
| -3 | 390k |
| -6 | 200k |
| -9 | 150k |
| -12 | 96k |
| -22 | 47k |

To get the "+B lo" voltage you want after the "+B hi" value is set, make the value of Rx larger or smaller. The low voltage is for a detector stage, and its load will probably be only one or two milliamps. As a kid, I was frustrated for a couple of years because I didn't know Ohm's Law: it says E = I × R, meaning that a 50k resistor will drop 50 volts if it has one milliamp going through it (.001 amp × 50,000 ohms = 50 volts). So if your rectifier output voltage is +135 volts and you want 23 volts for the detector, and it takes 2 ma, then your Rx will be 56K, because .002 amp × 56,000 = [135-23] = 66 volts, the voltage drop you want from 135 volts.

Finally—if you're worried about appearances and are still reading this column, you can build this supply into the cardboard wrapper of an old battery pack. Figure 3 shows two versions of this idea. I picked up an Eveready 756 and an RCA VS057 on the Internet auction, threw away the contents, and made boxes out of copperclad to fit inside the wrappers. You can either use the existing battery connector or change to an octal socket for power in/out connections, as shown. The big Radio Shack transformer was a skosh too wide, so the picture shows a Stancor P-6375 power transformer from Fair Radio Sales (419-223-2196). For optimum realism, though, take the guts out of an old six-volt storage battery (wear gloves and be careful of all the lead!) and put the whole supply inside that. It'll look great next to your Atwater-Kent Breadboard radio!

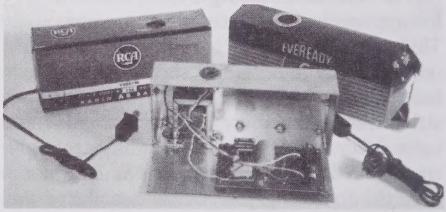



*Fig. 3. This version of the same supply hides inside a gutted "B"-battery housing, providing an authentic period look.*

*Note: In this power supply, the -B, or ground, terminal is also the +C terminal. Some battery radio power-supply hookups require a +C output that is isolated from -B. I'll be publishing a "workaround" to handle this requirement in a future column.*

BY ED GABLE K2MP/W2AN,
CURATOR/DIRECTOR AWA ELECTRONIC COMMUNICATION MUSEUM

# THE NEW HAMMOND MUSEUM

Few of you were are unaware of the wonderful radio museum in Guelph, Ontario. It was founded by one of ham radio's most enthusiastic and generous people, Fred Hammond, VE3HC. Fred, a leading Canadian industrialist, used his resources to amass a wonderful collection of vintage ham radio items, broadcast sets, vacuum tubes, wireless equipment and speakers. The museum was located adjacent to one of his manufacturing plants and he freely shared his wonderful collection with radio enthusiasts and AWA members everywhere. Fred Hammond and Bruce Kelley were dear friends and comrades in museum leadership.

*Bill Hammond, Museum Director, cuts the ribbon for the Grand Opening.*

Difficult times fell on Fred with a terrible stroke suffered over a year ago. This problem was combined with the need to move his museum from the original location due to changes in the Hammond Manufacturing business. Everyone was concerned about the museum and what would happen to it without Fred's leadership.

Enter Fred's son, Bill Hammond, who decided to continue the legacy by building a new facility for the museum at their newest manufacturing location. Bill has done a wonderful job, one that his father and radio enthusiasts everywhere will certainly approve of.

October 2nd saw the Grand Opening ceremony. In the Hammond fashion, it was well done, well planned and well executed. The crowd all waited in hushed anticipation of the possibility that Fred, himself, would be there for the ribbon cutting. But an unfortunate late health problem prevented that from happening and Bill made a wonderful master of ceremony. With the ribbon cut, the invited crowd enjoyed several hours of looking at the wonderful displays, enjoying the cheese and wine party and just chatting with fellow radio historians.

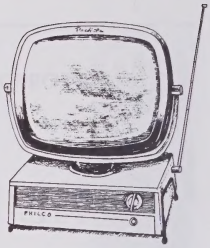
Bill Hammond is the Museum Director and has named Noreen Irwin as Curator. Noreen can be contacted at (519) 822-2960 or via e-mail at nirwin@hammfg.com. The museum also has a Web site at www.kwarc.on.ca/hammond. It is located at 595 Southgate Drive, off of Laird Road, just off Rte. 6 in Guelph.

The AWA is proud to say a hearty "well done" to Bill Hammond, for his personal efforts and leadership in assuring that the legacy of Fred Hammond, VE3HC, continues into the next millennium.

**AUTHOR'S ADDRESS: 187 LIGHTHOUSE RD., HILTON, NY 14468**

# TELEVISION

EDITED BY **RICHARD BREWSTER**, 145 LITTLE PECONIC BAY ROAD,
CUTCHOGUE, NY 11935 *PLEASE INCLUDE SASE FOR REPLY.*




## Trouble in Television—Part 1

*By Alva Johnson*

Adapted, with permission, from
*The Saturday Evening Post* for September 28, 1940.

*Few of us experienced the earliest days of pre-war electronic television. Unlike radio, television was available to only a very small number of people in the years just before WWII since the transmissions covered a limited range and networks were not yet in operation. Shows all originated locally, but the impact of television was felt around the country as folks clamored for the chance to "look in." In my columns for this issue, and the next issue of The OTB, you'll find out what it was like in those days, almost 60 years ago, when politics almost derailed the beginnings of television in the United States. My occasional comments are set off in brackets. —RB*

Newburgh is a beautiful old town of some 30,000 inhabitants on the west bank of the Hudson, about 60 miles north of New York City. Like most places of its size, Newburgh has enough horse players to support a few "bookmakers." Shortly after the opening of Belmont Racetrack this year, two of the bookmakers were cleaned out. On Wednesdays and Saturdays a group of Newburghers had become infallible in picking winners.

One possessor of the 100% perfect system of beating the races was too honest to use it. This sainted character is John Guzorsky, proprietor of *Your Lunch*, at 375 Broadway, Newburgh. He called up a friend in the bookmaking line six times one afternoon, placing bets on the winner each time and then refunded the money. Asked to explain his system, Guzorsky answered in one word: "Television."

There are television sets in *Your Lunch* and other cafes in Newburgh. Races were televised on Wednesdays and Saturdays. The spectators at the television set saw the horses first in the paddock, with the radio comment of Clem McCarthy, sports commentator, then the finish of each race, less than a thousandth of a second after the event. The bookmakers, on the other hand, had to wait until the judges had put up the numbers of the first three horses, which were then relayed to the radio station to be put on the air. The televiewers had a minute or perhaps several in which to telephone their bets to a "bookie."

This happened because Newburgh is the Televisionville of America. There are

*Early TV viewers quickly forgot they were looking at a postage-stamp sized screen as they became involved in watching a program.*

more television sets there in proportion to the population than anywhere else on earth. They are ten times as thick in Newburgh as in Los Angeles or New York, while most of America has no sets at all!

RCA attempted to launch television at the New York Worlds Fair in 1939. The public was delighted on the first day when live talent, flesh-and-blood celebrities, appeared and talked by television. The second day crowds were annoyed and repelled by ancient newsreel stuff such as "Sponge Fishing in Florida."

Only a few dozen sets were sold during the first season of the fair. However, rapid progress was made in programs and in the technical quality of the transmissions. David Sarnoff, president of RCA, decided last fall that television was ready for a trial on a typical town within range of the transmitting antenna on top of the Empire State Building. Newburgh was chosen because it was not very big and not very small, not very rich and not very poor. It was also chosen because it was too far away from the transmitter to get reception of the best quality. The aim was to discover whether an average community would be pleased with television of average quality. The campaign was a success. Nearly 200 sets were sold in the Newburgh area. Newburgh loves television.

"You can take my wife or my automobile, but not my television set," said one Newburgher.

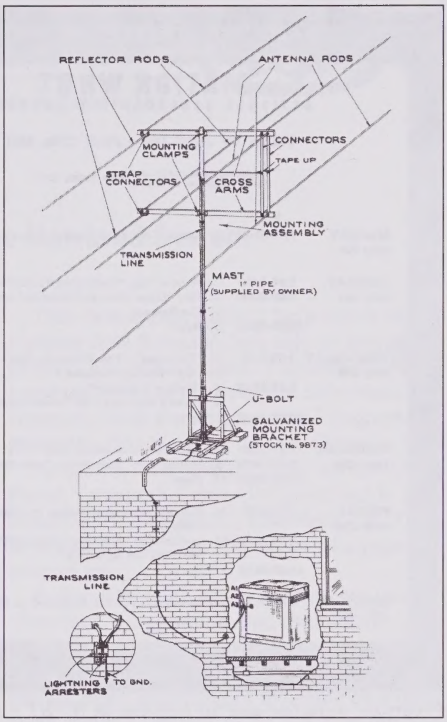



*Illustration from period antenna installation manual suggests what the urban roofscape must have been like as television sets proliferated.*

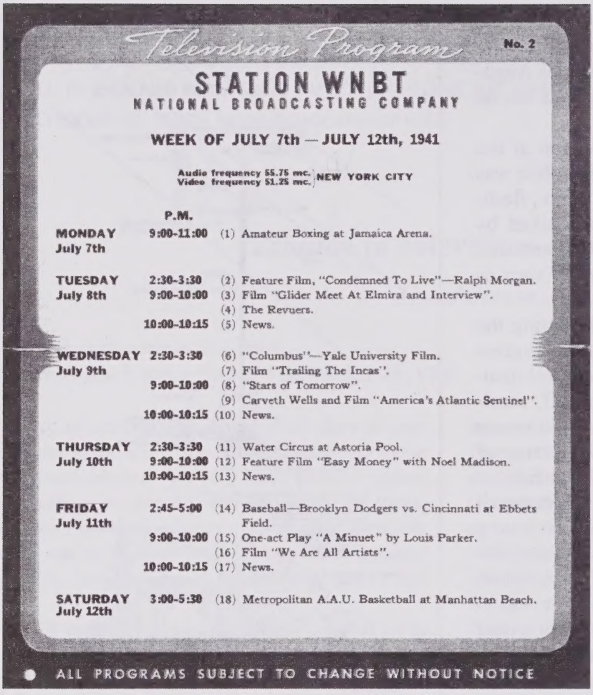
## *Grunters and Groaners in the Home*

Television was ready last March to sweep the country when its progress was suddenly checked by Washington's discovery that Americans in ordinary circumstances were too poor to buy television sets and must be protected from the temptation by the Federal Government.

The TV set is a little theater housed in a piece of furniture. The stage, or viewing screen, may be seven and one half by ten inches or even less, but the human eye is adaptable and rapidly falls under the delusion that it is seeing life-size action. Strangely enough, that branch of the theater which is contributing most to the popularity of television today is wrestling. Television is so good today that it registers every expression on the faces of the catch-as-catch-can tragedians. Every moan and every howl is reproduced. The modern television receiver includes one of the finest radio sets on the market!

Prize fighting had previously been the mother of arts. It did more than anything else to establish the movies, radio and English television *[the British had a modern TV system since 1936].* Forty-five years ago *[1895]*, the future of cinema suddenly became assured when thousands of opera houses, barns and tents throughout the country echoed with cheers at the first motion picture prize fight — a four-round bout between James J. Corbett and a forgotten battler named Courtney. Broadcasting was put on its feet commercially in 1921 by the rush to pay $300 a set for earphone receivers *[!]* when the Dempsey - Carpentier fight was put on the air by what was then known as "wireless telephony." A year and a half ago, Londoners paid a guinea a ticket to see a prize fight in theaters equipped with large television screens. What television needs today is another Dempsey. Obstructionists in Washington would be swept away by the clamor to hear and see new battles of the century over television networks.

The skyline of Newburgh has been changed by television. Tourists stop their cars to gaze at what appear to be newfangled lightning rods. These are the television antennae. They look like steel-handled two-pronged pitchforks and rise twenty or more feet above the roofs of buildings. In the early days of television at Newburgh,



Television Program No. 2

STATION WNBT
NATIONAL BROADCASTING COMPANY

WEEK OF JULY 7th — JULY 12th, 1941

Audio frequency 55.75 mc.
Video frequency 51.25 mc.
NEW YORK CITY

| | P.M. | |
|---|---|---|
| MONDAY July 7th | 9:00-11:00 | (1) Amateur Boxing at Jamaica Arena. |
| TUESDAY July 8th | 2:30-3:30 | (2) Feature Film, "Condemned To Live"—Ralph Morgan. |
| | 9:00-10:00 | (3) Film "Glider Meet At Elmira and Interview". |
| | | (4) The Revuers. |
| | 10:00-10:15 | (5) News. |
| WEDNESDAY July 9th | 2:30-3:30 | (6) "Columbus"—Yale University Film. |
| | | (7) Film "Trailing The Incas". |
| | 9:00-10:00 | (8) "Stars of Tomorrow". |
| | | (9) Carveth Wells and Film "America's Atlantic Sentinel". |
| | 10:00-10:15 | (10) News. |
| THURSDAY July 10th | 2:30-3:30 | (11) Water Circus at Astoria Pool. |
| | 9:00-10:00 | (12) Feature Film "Easy Money" with Noel Madison. |
| | 10:00-10:15 | (13) News. |
| FRIDAY July 11th | 2:45-5:00 | (14) Baseball—Brooklyn Dodgers vs. Cincinnati at Ebbets Field. |
| | 9:00-10:00 | (15) One-act Play "A Minuet" by Louis Parker. |
| | | (16) Film "We Are All Artists". |
| | 10:00-10:15 | (17) News. |
| SATURDAY July 12th | 3:00-5:30 | (18) Metropolitan A.A.U. Basketball at Manhattan Beach. |

● ALL PROGRAMS SUBJECT TO CHANGE WITHOUT NOTICE

*Programs were few and far between in WNBT's 1941 broadcasting schedule.*

some people were under the impression that the television pictures appeared on the antennae, and groups sometimes stood gazing at the steel apparatus and waiting for the show; just as people a few generations ago used to watch the telegraph wires in the expectation of seeing the messages. Others labored under the delusion that the owner of the television set could tune in on any event in any part of the world, and were surprised to learn that television at Newburgh is limited to about two hours of entertainment broadcast daily from the top of the world's highest building.

A year ago it was supposed that not more than six or eight people could enjoy television pictures on a screen seven and one half by ten inches. More than fifty people, cheering, booing, and shouting advice, have watched wrestling matches and prize fights on screens that size in Newburgh. John J. McDermott, who has a place at 200 Ann Street, Newburgh, reports that more than thirty people have turned out to see a basketball game on a small television set which has a screen approximately six by eight inches!

Some of the menaces of television to the housewife were described by Mrs. J. E. McGrath, of 283 Powell Avenue, Newburgh. In the first place, it is becoming impossible, she said, to handle the crowds of callers on the nights of good television shows without erecting bleachers in her living room. The McGrath residence is set back about twenty feet from the sidewalk, and on the wrestling nights groups of people gather on the sidewalk and watch the show through the parlor window. Two relatives making an automobile tour dropped in on the McGraths for a one day visit. After seeing television, they stayed five days to avoid missing a scheduled night of wrestling. One of the televiewers at the McGrath residence was Chairman James Lawrence Fly, of the Federal Communications Commission.

"He saw a wrestling match," said Mrs. McGrath, "and said, 'This is better than a ringside seat.' The man who was with him tied himself up in knots and twisted himself all around, as if he were wrestling himself, while he watched the show."

Chairman Fly, who was so enthusiastic about television at Newburgh, is one of the sponsors of the theory that people of moderate and low incomes should be protected against television because of a superstitious danger that the present day television sets may soon become obsolete.

"You may be able to afford it but others can't," said Fly at a meeting of the Advertising Club, in New York City, on April second of this year. There is no doubt that persons of moderate and low incomes have willfully purchased television sets in Newburgh. At least one purchaser has the impertinence to be earning only twenty dollars a week!

Frank R. Dutcher, of Balmville Road, Newburgh, has a small television set which packs them in regularly. The capacity of his cottage is thirty people, which includes standees in the kitchen, from where the television screen is visible. He has had to "turn 'em away" twice: once on a wrestling night and once when his daughter, Helen Dutcher, took part in a television spelling match. Chairman Fly of the FCC visited the Dutchers to see their television set in operation.

"The first thing that Chairman Fly said," said Mrs. Dutcher, "is 'This is going to kill the movies'."

EDITED BY **ROGER W. REINKE**, 5301 NEVILLE CT., ALEXANDRIA, VA 22310-1113
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# 4 × 2 = Octoplex: The Rowland System

The Baltimore and Ohio Railroad (now CSX) has had a long association with telegraphy. Morse's first telegraph line ran along its right of way between Washington, D.C. and Baltimore, Md. In 1902, 58 years after Morse demonstrated the potential of telegraphy to Congress, the B&O enthusiastically described the invention of Professor Henry A. Rowland, of Johns Hopkins University in Baltimore. Dr. Rowland, a physicist, devised a printing telegraph system that featured the ability to transmit and receive eight messages simultaneously — the "Octoplex."

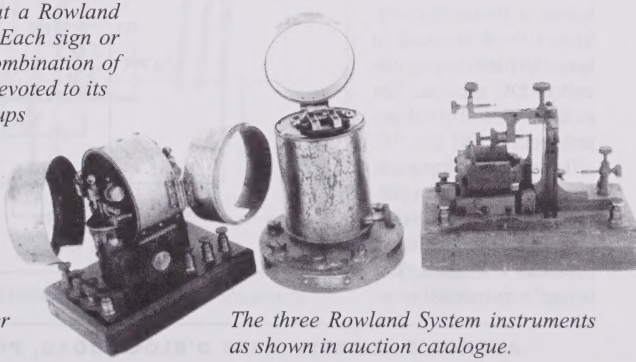
The *Book of the Royal Blue*, published October, 1902, featured an article entitled "Marvelous Advance in Telegraphy," which described the Rowland System. The publication was a promotional magazine put out by the B&O, and not at all technical in nature. "Royal Blue" referred to the B&O's primary passenger service, and it is curious that the railroad saw fit to publicize Rowland's work since it apparently made no use of it. The source for most of the article was a German publication, *Uber Land und Meer*; it turns out that the Imperial German Post Office was testing the System between Berlin and Hamburg.

The Octoplex was a page-printing quadruple duplex system. Rowland claimed it could handle 320 wpm on average, which is, or was, an impressive number. Quoting from the B&O article:

*Each of the four transmitters at a Rowland station is made like a typewriter. Each sign or letter transmitted depends on a combination of two waves in the group of eleven devoted to its individual transmitter. These groups are constantly flowing through the apparatus and keep the signals from the different transmitters in their proper succession. At the receiving station the current combination is carried through a bank of seven relays, which select and cause the proper letter to be printed.*

This description doesn't help much in explaining how Rowland was able to keep eight printers all synchronized. The common telegraph textbooks of the time paid little note to the Octoplex; Erich Hausmann, in his Telegraph Engineering, (1915), wrote that the Octuplex (sic) "…was for a time used on some circuits of the Postal Telegraph-Cable Company and is now being further improved." Elsewhere, Dr. Rowland was also cited as the author of a paper on magnetism.

A few years ago three instruments labeled "Rowland Telegraphic Co., Baltimore, Md., U.S.A." were brought to our attention by a Baltimore antique dealer. They were nicely made, and the fancy engraving of the name on a polar relay made it appear to be a a presentation model. (The Wheatstone-type relay probably was purchased by Rowland, and not made by him.) These same pieces apparently made their way to auction, where they were sold for over $5,000. The scarcity of Rowland instruments suggests that the Professor's system was never used to any significant extent by American commercial carriers; perhaps he enjoyed more success in Europe. The lack of success may be explained by the final paragraph in the B&O's article: "…it is with great regret that his death, which occurred only a few months ago, should be at a time when his wonderful genius was hardly in its zenith."



*The three Rowland System instruments as shown in auction catalogue.*

BY FRANK J. LOTITO, K3DZ

# BUILD AN EARLY 1920s ONE-TUBE TRANSMITTER

## *Introduction*

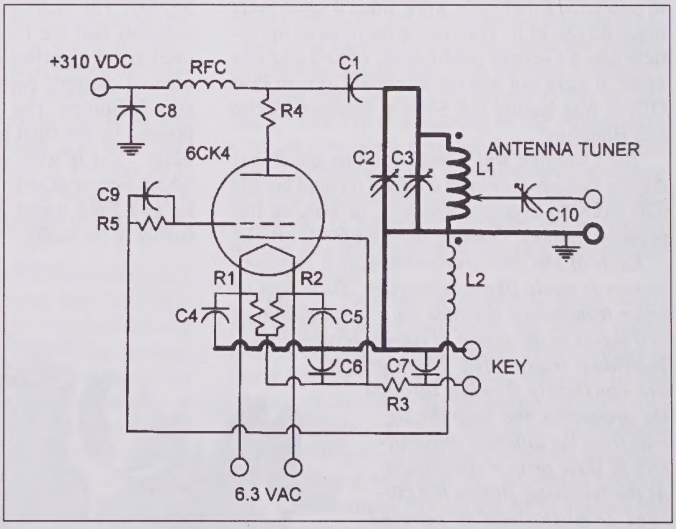
Are you interested in an easy way to build an oldtime transmitter from the primeval days of tube rigs? You may want to try this one. It is based on the one-tube power oscillator circuit presented in H. Lauer and H. L. Brown's "Radio Engineering Principles," McGraw-Hill Book Co., 1920, page 200. Identical circuits are also presented in J. H. Morecroft's "Principles Of Radio Engineering," John Wiley & Sons, 1921 and 1927, pages 487 and 569, and in other engineering texts and applied technology books of that period through to the 1960s (see references at end of article). Depending upon the tube used, power outputs from milliwatts to hundreds of watts could be realized in the early 1920s, and of course, with today's tubes.

As you can see from the schematic diagram, the basic transmitter contains only one resonant circuit (L1/C2/C3), a parallel-tuned plate circuit). A non-resonant "tickler coil" (L2) is inductively close coupled to the RF ground side of the plate tank circuit. This coil feeds the tube's grid circuit through a parallel combination of a 27k resistor and 300 pF capacitor. The resistor and capacitor bias the tube when it is oscillating. Shunt feed is used to keep the plate tuning circuit at DC ground. The earliest circuit used series feed.

I use a 50 Ω-input antenna tuner to feed a parallel wire transmission line to an untuned semi inverted-V antenna. The tuner's input is connected to tank circuit's inductor near the RF ground end without a link. A series variable capacitor is used to control loading. (If you use series feed, the variable capacitor will provide the DC isolation to your antenna tuner.) The period transmitter used the antenna wire directly coupled to the plate tank circuit's inductance, and a substantial counterpoise connected to the transmitter's ground bus for the RF ground.

The antenna, or tuner, tap point on the plate circuit's inductor is dependent on the impedance of the load. Low impedance loads are connected near the bottom of the inductor; high impedance loads near the top of the inductor. Coupling an antenna directly to a series fed tank circuit is dangerous, and was against the law in the 1920s unless a d.c. blocking capacitor was used.

Most definitely this transmitter is one of the "basic primeval" tube transmitter circuits appearing at the close of World War I. It's very easy to build, suitable for "file to fit-fit to file"




*Schematic diagram of the early 1920s one-tube transmitter.*

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construction, and very accommodating of whatever parts you have stashed in your junk box. Besides, it's fun to operate. Too bad you can't see the expression on the face of the amateur you're in contact with when you describe "stats" of the transmitter, but you can definitely hear the surprise in their reply.

## *Design Specifics*

**Tube.** I use a 6CK4 low-mu triode (see the RCA RC-22 Receiving Tube Manual, 1963). The 6CK4 was used in some TV vertical deflection Amplifiers. The mu is 6.6, plate resistance 1200 ohms, transconductance 5500 micromhos, and the plate dissipation is 12 watts maximum. The cost is nominal, around $3-$4 at local hamfests, and that's for a new boxed tube!

I have not tried it, but I am sure that, with appropriate minor circuit changes, any low mu-triode can be used, including a triode-connected beam power tetrode such as the 6V6, 7C5, 6W6 or 6L6, or even a triode-connected TV sweep tube. Since no shielding is used, and there is minimal harmonic filtering, I would not recommend the use of high power level tubes!

Typical early 20s amateur triode tubes were the 205-D, VT-2, UV204, UV203, UV202 or even the small UV201. If you have a vintage tube, you may want to use it for this project.

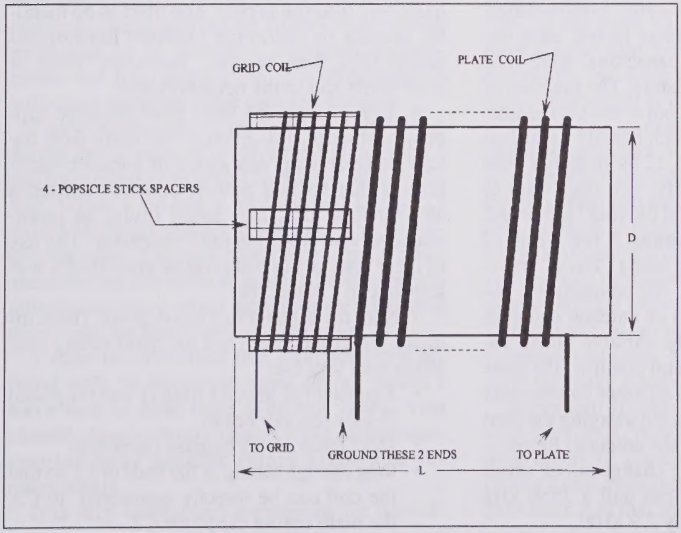
**Band.** This design is for the 80 meter band. It is interesting to note that the *RCA Radiotron Designer's Handbook* recognizes this type of oscillator circuit as being capable of operation up to 50 MHz. The circuit can also definitely be scaled for 160 meter operation. Scaling to 40 meters may not be advisable if there is any chance of trees near the antenna, antenna wire or the feed line swaying in the wind. Sway may make for an unacceptable amount of frequency pulling if the antenna coupling is not backed way out.

**Voltage and Currents.** I use a brute force pi LC filtered power supply. The power supply is regulated by two VR-150s in series. Regulation was necessary to minimize keying chirp. The transmitter's loaded key-down plate current is about 22 milliamperes, unloaded about 8 milliamperes. The loaded grid current is about 2 milliamperes. The period transmitter may have used batteries, a DC generator, or even raw unfiltered AC for the plate supply.

**Output Power.** This design produces about 2½ watts into 50Ω. More output is realizable, but with a degradation of tone and frequency stability.

**Output Plate Coil.** The plate coil is 15 turns of space-wound ¼-inch diameter soft copper tubing. The wound length is about 6 inches. The coil form is a 3.3 inch OD varnished cardboard tube. The coil ends are purposely left long to connect to the tuning capacitor, and ground bus.

**Tickler (Grid) Coil:** This coil is 10 turns of space-wound #12 AWG solid bare copper wire, about 1.6 inches long. It slides over the plate coil form and is close-coupled to the grounded side (RF cold side) of the plate coil. The tickler coil and plate coils are wound in the same direction. Sections of popsicle sticks are glued to the inside diameter of the tickler coil to give it form and permit easy sliding when adjusting its coupling to the plate coil. The tickler coil is RF and DC grounded at the shunt fed plate coil's RF ground end.




*Typical coil set—see text for dimensions.*

**RFC (plate choke) Coil:** The coil form is a varnished 15/16 diameter wood dowel rod (actu-

ally a section of an old broom handle). The coil consists of a four-section series winding of #28 AWG enameled wire. The sections are plain solenoid close wound, 50T, 70T, 70T and 50T, with each section separated from the other by about ¼ inch. All windings must be in the same direction. The period coil was close wound on a much larger diameter hollow form and, very likely, almost parallel resonant at the operating frequency. The period coil used single or double cotton or silk insulated wire.

**Keying.** The transmitter is cathode keyed. Key clicks suppressed using only a 0.04 and 0.1 microfarad capacitor. A 47Ω resistor in between the capacitors is used to minimize the effect of key-down resistance changes. These resistance changes were found to cause sudden small frequency jumps. I frequently use my keyboard keyer with this transmitter via a solid state interface circuit. But for a reason unknown to me, the transmitter develops frequency stability problems when keyed over 15 WPM.

**Filament Supply.** A transformer-operated 6.3 VAC supply with two series 47Ω half-watt resistors across the filament windings. Neither leg of the filament supply is grounded. In parallel with each resistor is a 0.04 microfarad ceramic disk capacitor. The junction of the resistors is connected to the key side of the tube's 47Ω cathode resistor. This was done to eliminate the possibility of causing a cathode-to-filament short on key-up if one end of the filament had been grounded. The period transmitter used a direct heated (no cathode) tube powered from batteries, or a DC generator. Christmas lamps, each bypassed with 0.01 uF mica capacitors, were used in place of the 47-ohm resistors. The junction of the two lamps was brought out to the keying line.

**Base Board.** Use half-inch heavily varnished AC exterior grade plywood, 12 by 16 inches (size is not critical). Alternatively, you may want to use a "choice" piece of wood for your base board.

**Mechanical Considerations.** A few words of caution are in order when using "basic" transmitter circuits as this one: All connections, antenna change over relay(s) or antenna switches must be solid and clean, the variable tuning capacitor wipers very clean and positive, the plate and tickler coils, as well as all other components solidly supported, and no wind swaying the feed line, antenna, or trees near the antenna! Remember, the equivalent of a ½pF change out of about 300pF in the plate circuit can pull a 3550 kHz transmitter off frequency by 2.9 kHz!

This transmitter's frequency and tone, as with all simple non-buffered LC tuned self-excited oscillator transmitters, is very susceptible to dirty connections, components bouncing in sympathy with your keying, and feeder/antenna sway.

## *A Few Hints*

1. I had to put a few daubs of silicone rubber sealant (RTV) here and there on my plate coil to eliminate even the slightest bouncing of the coil on the cardboard form. Bounce caused sudden frequency shifts, or FMing, of the transmit frequency.

2. A long ¼-inch diameter fiberglass "bicycle safety flag" dowel rod was used to couple the rotor shaft of the vernier tuning capacitor to the tuning knob. This was necessary to minimize hand capacity when adjusting frequency. (A ¼-inch wood dowel works, but it is more springy, which makes fine frequency changes difficult.)

3. You may have to carefully adjust your antenna tuner with a noise bridge or QRP SWR bridge to get the coax feed resistance as close as possible to resistive with minimal reactance. For my tuner and antenna setup, this minimized a slight tendency for sudden frequency jumps of about 500 to 800 Hz. A perfect 50Ω "on the nose" resistance was not required.

4. Do not over-couple the load to the tank coil or use too high of a grid bias resistor. Squegging and other instabilities will result.

5. Yes, a **big** 200+ watt vintage or modern single or parallel jug version of this transmitter can be built. Remember, everything is exposed, the harmonic filtering is poor, and there is no metallic chassis to minimize radiated harmonics! Safety first; then, second, "harmonic" piece in your home and in the neighborhood!

6. Don't forget the little plate parasitic suppresser resistor, R4. Even in the early days the knowledgeable op was aware of parasitic oscillations that robbed power, possibly caused a shorter tube life, and could invite an unannounced visit from the radio inspector. The use of these resistors in plate and/or grid circuits was known early in the 20s.

7. Note the schematic's heavy lines. These indicate the ground buss and the main tuning coil. Make sure you use:

- a substantial ground buss (I use tin-plated ⅜-inch copper braid)
- short leads on all by-pass capacitors
- long enough tubing at the ends of L1 so that the coil can be directly connected to C3, the main tuning capacitor C3
- correct phasing on L1 and L2, with both wound in the same direction.

*(continued on page 48)*

BY ROBERT LOZIER, KD4HSH

# WHAT DO WE DO NOW?

## *Disposing of An Estate Collection*

*This article originally appeared in the August, 1999 (Vol. 1, No. 1) issue of* Radio Daze, *the newsletter of the Carolinas Chapter AWA. It is reprinted here with permission.*

*The content might seem a bit jarring in an issue devoted to reviewing the fun and excitement of our annual conference! However, there's no escaping the fact the items we acquire through our flea market and auction shopping must often eventually be dealt with by the executors of our estates.*

*Bob Lozier has given advice to many an executor, and in this article has taken some time to present his ideas in a thoughtful and organized manner. You might like to file a copy with your personal papers. Bob will be pleased to send you a copy. Just enclose a #10 S.A.S.E. with your request. —MFE*

One way or the other, spouses and families of radio collectors—indeed, collectors in any hobby—will eventually have to answer this question. When a collector dies, or is suddenly incapacitated by illness from which there may be no recovery, continued maintenance and final disposition of a vintage radio collection demands some care and thought.

I have encountered this problem many times during my 30 years of involvement in the hobby, and have often been asked for advice on the subject. While I am not a professional advisor, I would like to discuss some possible ways to handle this issue. They are based on common sense and a feeling that folks deserve to have informed outside opinions when determining what will prove best for their particular situation.

**I want to stress that this information is offered only to illustrate some of the issues I have had to deal with over the years. You should always obtain expert legal advice concerning your specific estate plans and requirements.**

It is very helpful and appropriate for the collector to make his or her preferences known in writing well beforehand. Like buying insurance or discussing the making of a will, determining the disposition of an estate is a difficult task. Nonetheless, it is important not only to put one's wishes in writing, but also to verbally communicate them to trusted family members, friends and/or other collectors.

### *Establishing the Value of the Collection*

If, however, no specifications concerning the collection have been made prior to the death or incapacity of the collector, the executor must know the relative value of the pieces involved. In determining fair market value of antique radios, there are several resources available to assist anyone unfamiliar with the subject. Up-to-date price guides can be a starting point for determining the value of your items, but keep in mind three things: condition, condition, condition! Your item may be in such a shabby state that it is only good for parts and therefore worth only 10% of the book value. Conversely, you may have a near mint piece—complete with documentation, packing case and interesting history— that might command a 50% premium.

Even when an item is in apparently fine condition other factors, such as incorrect refinishing or restoration, can sharply affect its value. Here the inexperienced individual should seek outside help. Identify a number of people in the hobby whose opinions the collector has trusted and that you feel can be counted upon for honest evaluations of current value. This expert advice will be valuable to you, so offer to pay for the expert's expenses and time. Most folks will decline the offer but make it anyway as a matter of courtesy.

Important! If you are not completely familiar with the hobby, don't make premature assumptions about the possible "collectibility" or value of any items associated with the estate. Often, I have been told that someone in the family has already hauled pick-up truck loads of "junk" and

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"tons of old paper" to the dump. Let your advisor determine if there is value worth extracting from any of the items you view as "junk."

Also remember that the vintage radio hobby has many facets, and nobody is experienced in them all. My own area of special expertise is in home broadcast receivers made in the US and Europe from 1920 to 1950. When asked to evaluate an estate, I carefully note areas of the hobby where I may not be the best judge of current market values.

Don't hesitate to ask your advisor about his/her familiarity with the various types of equipment or documentation in your estate. You and/or your expert should make an inventory of all major items. Not only will the inventory help you know what types of pieces you are dealing with, it will also be an invaluable tool for marketing the collection.

I'd also suggest videotaping the collection, keeping the original at home and a copy in your bank safety deposit box. This can be helpful for insurance purposes—claims for fire, theft, etc. Note the need for a duplicate tape: most people do not realize that, in the event of a death, the safety deposit box may be sealed until an executor obtains control.

## *Selecting a Disposal Method*

Once your inventory has been made and you have a thorough idea of the content of the collection and its individual and collective worth, you are ready to move to the next step: disposal. In most cases, the best advice is dispose of the items as soon as legal ownership has been determined. If there is nobody in a position to protect and preserve the items of a collection, they can suffer damage that can have a serious impact on the market value. Don't forget today's emphasis on intellectual property and copyrighted material. You may need legal release for some of the materials in your estate. Don't hesitate to consult an intellectual property attorney.

There are several methods of disposing of a vintage radio collection. These include:

- Selling piece-by-piece
- Selling as a lot.
- Holding an on-site auction
- Holding an auction at a remote site
- Holding an auction in conjunction with a vintage radio conference
- Internet auction sales
- Donation

After you have assessed the collection, decided on selling it, and determined the method of sale, you will have to advertise. Your inventory will come in handy now as a guide for prospective buyers. Presently the very best way to reach a large number of qualified buyers is to advertise in Antique Radio Classified. I would recommend a full page ad placed in at least two consecutive issues.

The ad should give sale dates, a brief description of the kinds and quantities of merchandise being offered and a mailing address where folks can request a detailed listing of items for sale. I would not include a telephone number in the advertisement unless you are really familiar with the items in the collection. Save that for the detailed listings you mail out.

There are various vintage radio clubs—such as this one—that publish journals or newsletters including space for member advertisements. for little or no cost you can place announcements of sales and general listings of equipment. Just look around the estate holdings for these newsletters and publications, then contact the editor.

My experience has been that display advertising in large local newspapers has minimal value. 4-line classified ads in the "Auctions" AND "Antiques & Collectibles" categories seem to be just as effective as a 4 column-inch ad costing several hundred dollars.

There are also a number of general interest collector publications in newspaper format that offer classified ads. But ads in such publications typically will not to bring in many qualified buyers. You can usually find copies of these publications at your local large antiques mall.

## *Selling Piece-by-Piece*

If the family is in no particular hurry to sell the estate items and does not mind multiple visits from prospective buyers, consider piece-by-piece selling. This could be a good way to sell off the more desirable parts of the collection at a market price, but you are likely to wind up with a lot of unsold items of lesser quality. You would probably have to negotiate a lot price for the remainder at a fraction of market price.

If someone in the family wishes to take on the task, there are groups of vintage radio enthusiasts in many regions that organize flea markets where you can sell the items. These events can attract anywhere from 50 to over a thousand qualified collectors. Amateur radio clubs also sponsor "hamfests" which are primarily flea markets for all kinds of electronic products. These events attract anywhere from a few hundred to several thousand folks. There will not likely be a large number of enthusiastic collec-

tors at hamfests but you may have the opportunity to meet people that might be looking for just one old radio "like my grandmother had in the front parlor."

### *Selling as a Lot*

There are a number of folks who are willing to purchase an entire collection. Some are simply acquiring stock for resale. Others are collectors who might be willing to buy the entire lot as a way of getting first choice for their collection. The advantage of such a deal is that all of the items are disposed of at one time—the good stuff as well as the dregs—in a matter of weeks.

The down side is that you are likely to realize less money than by other means—perhaps only 40 to 70 percent of fair market value. The dealer or collector will be looking to recoup the costs of gathering the collection, selling the surplus at various events, marketing it through magazine advertisements, or selling it over the internet. Dealers, and most collectors, will also factor in a decent profit on the deal.

### *Holding an On-Site Auction*

In my opinion, this is a good option only if the collection is large and desirable enough to attract buyers from a large area. Most auctioneers will not have had experience in selling off such merchandise and will need consultation from your advisor. It will be absolutely necessary to advertise in national and regional collector publications and place notices on web sites. If the sale is only advertised in local newspapers, it is likely that there'll be just a small number of qualified and enthusiastic buyers at your sale.

The auction professionals that I know usually require 25 to 40% of gross sales for their services. Sometimes you will be able to negotiate a better deal if the collection is large. There are a small number of auctioneers that have had specific experience in selling vintage radio collections, and their advertisements can be found in *Antique Radio Classified.*

### *Holding an Off-Site Auction*

Though you now take on the expense of packing the collection and shipping the items to an auction house, this method has the advantage of getting your home back in order more quickly. You have also reduced your risk that bad weather might limit the crowd. The auctioneer can usually do a better job of advertising, and many folks may be familiar with the auction house location. The location may also be more convenient for out-of-town buyers.

### *Holding an Auction in Conjunction with a Vintage Radio Conference*

This may be one of the best ways to dispose of a collection. It may also be the most difficult to arrange. Since such conferences are staged by groups of volunteers, it may not be possible to get people to invest the considerable amount of time necessary to hold the auction. It could be great from your perspective because of the extremely high percentage of qualified buyers that would be present at such a conference. The down side is that the larger meets are only held once a year, so you might have to wait a long time to get your money.

If you do choose this route, insist on a written contract detailing all of the relevant issues mentioned throughout this article. You will be expected to donate a certain percentage of the proceeds to the club treasury and to meet expenses of truck and temporary storage rentals, packing supplies, etc.

### *Internet Auction Sales*

This method is the current rage. Stories abound of sky-high prices bid for notable items and of unusually high prices for ordinary items. However, you will need the help of someone with a lot of experience in this new method. Arrangements must be made for shipping and for resolving payment problems or disputes due to buyer dissatisfaction. It may be difficult to sell the less desirable items over the Internet, since there is so much high-dollar stuff being offered on various web sites. Many buyers use the low-ball bid strategy to pick up the lesser items.

### *Donation*

Depending on your financial status and personal interest, you may elect to donate specific items or the entire collection to a museum or fraternal organization. There can be certain tax benefits to the estate as a result of such donations. The terms of the donation must be well-documented and the organization receiving the donation must give you written proof of their tax status in the form of their 501(c)3 certification if you are to make a secure claim for tax credit.

Recent IRS rules prevent museum staff from appraising the value of donated artifacts. If the total valuation of the donation is over $500.00, the donor will have to have the items appraised

by a third party. Many museums will supply a list of appraisers who will do this for a fee or at no charge. You should be aware that, in most cases, the museum or club will be free of obligation to place your donations in its permanent collection. It is common practice for a museum or club to sell off donated items to finance other acquisitions or to help cover general operating expenses. If you wish to donate items only for a permanent collection, or expect the items to be maintained on exhibit, there must be specific references in the agreement to such terms.

## *In Conclusion...*

Above all, take time to do things right! If you agree to have someone help you sell a collection, it is in YOUR best interests to have the terms and conditions of the selling relationship spelled out in the form of a signed, notarized contract detailing your responsibilities and those of the seller. Set dates for the sale and for when items will be removed. Establish deadlines for payment. Identify and estimate expenses. Indicate the extent of liability if things do not go as planned. Define methods of advertising and obtain proof that the advertisements have been published.

If you have an auction, notify the police of the event and find out if your town requires a permit. Contact neighbors to make sure where parking would be permitted or if areas should be marked "off-limits." If the auction is held on your property, consult your insurance agent to see if the event is covered by your liability policy. If you contract with an auctioneer, obtain proof that his insurance protects the event and inquire about the limits of liability.

Again, I do not presume that this article will cover all of your particular needs, but it is a good start in answering that question: "OK... What do we do now?"


### ACKNOWLEDGEMENTS

*My thanks to Dr. Ed Taylor and Ed Gable, Curator/Director of the AWA Electronic Communications Museum, for their input.*


## *ONE-TUBE TRANSMITTER,* *continued from page 44*

8. Grid current can be measured as follows: Unground (disconnect) the end of L2 marked with a dot on the schematic and install a .04-.05 mfd ceramic capacitor from the free end to the ground bus. Connect a milliammeter across the capacitor, positive terminal to ground.

Have fun, and don't be surprised when you make a whole bunch of contacts with "tail gaters" and "read the mail" ops who are curious to know more about your OT rig!

### *Parts List*

R1 47Ω, ½ watt
R2 47Ω, ½ watt
R3 47Ω, ½ watt
R4 100Ω, ½ watt
R5 27kΩ, ½ watt
C1 .01 mfd, mica,1000 VDC
C2 100 pF air variable
C3 350 pF air variable
C4 .04 mfd, ceramic, 600 VDC
C5 .04 mfd, ceramic, 600 VDC
C6 .04 mfd, ceramic, 600 VDC
C7. 1 mfd, foil, at least 200 VDC
C8 .04 mfd, ceramic, 600 VDC
C9 300 pF, mica, 250 Vd.c.
C10 500 pF, air variable
L1 main tuning coil, see text
L2 tickler coil, see text
RFC RF choke, see text

Note: C4, C5, C6, and C8 can be any value between .04 to .1 mfd. C4 and C5 can be low voltage micas. However C6 and C8 must have voltage ratings high enough to safely withstand the expected operating voltages.

### REFERENCES


*Radio Telephony For Amateurs* by S. Ballentine. David McKay Co., Philadelphia, 1922, pages 114-117

*Radio Engineering* by F. E. Terman. McGraw-Hill, NY, 1932, First Edition, third printing, starting page 228

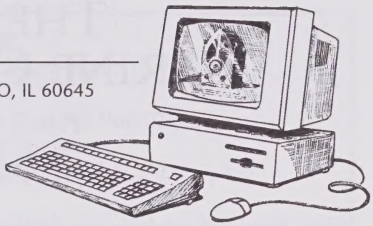
*Theory Of Thermionic Vacuum Tubes* by E. L. Chaffee. McGraw-Hill Book Co., N. Y., 1933, first edition, pages 322-329, with ΔEo set at zero (very heavy academic analysis)

*Principles of Radio Engineering* by R. S. Glascow. McGraw-Hill Book Co., NY, first edition, tenth printing, 1936, starting page 261, (very heavy academic analysis)

*Applied Electronics* by T. S. Gray. John Wiley and Sons, NY, second edition, 1954, seventh printing, pages 664-670, very heavy academic analysis

# ON THE INTERNET

EDITED BY **CHUCK SCHWARK**, 7454 N. CAMPBELL AVE., CHICAGO, IL 60645
*PLEASE INCLUDE SASE FOR REPLY.* E-MAIL: caschwark@aol.com



After working with our museum to assist in displaying some of their extensive collections and holdings on the internet (see the AWA web page www.antiquewireless.org), I got to thinking about other museums and collections that would be of interest to devotees of antique communications technologies. So here is a short, and by no means complete, list of a few of the more prominent and also not so well known websites out there on the Internet.

**http://monviso2.alpcom.it/hamradio/**
100 Years of Radio, 1895-1995. A very well made website recounting Marconi's inventions and related radio and telegraphy topics.

**http://users.ids.net/%7enewsm/**
The New England Wireless and Steam Museum in East Greenwich, Rhode Island.

**http://www.zianet.com/sparks/**
The Sparks Telegraph Key Review. This site deals with early land keys, Western Electric keys, bugs and related topics and other website links.

**http://www.ontheshortwaves.com**
On The Shortwaves. A website devoted to the history of shortwave broadcasting and shortwave listening.

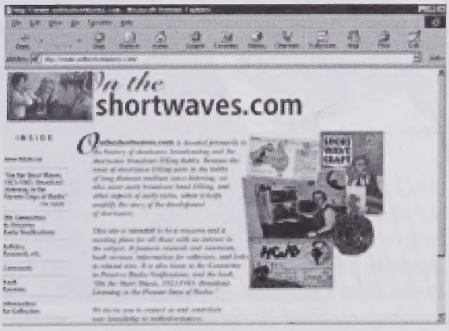
**http://www.kwarc.on.ca/hammond/**
The Hammond Museum of Guelph, Ontario. This great museum founded by Fred Hammond, VE3HC, is featured in this *OTB* issue.

**http://members.aol.com/radioclctr**
The expanded Vintage Radio and Communications Museum of Connecticut has just moved to new quarters with double the space.

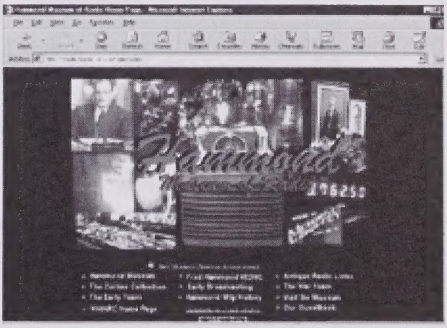
*East Hartford Mayor Timothy Larson, with help from museum volunteers, cuts the ribbon officially opening the Vintage Radio and Communications Museum of Connecticut at its new quarters.*

Besides its collection of over 500 vintage radios and televisions, the museum has antique movie projection equipment, a library and research center and a radio broadcasting studio.

**http://www.metronet.com/~nmcewan/ref.html**
A true "virtual museum" of the art of telegraphy packed with pictures, graphics, articles and references. Titled by its presenter, Neal McEwen, K5RW, as "A tribute to Morse telegraphy and resource for wire and wireless telegraph key collectors and historians," you have to see this site to appreciate what it offers.




*http://www.ontheshortwaves.com*



*http://www.kwarc.on.ca/hammond/*

# THE END OF CW MARINE COMMUNICATIONS?

*From a Globe Wireless® Press Release*

## *Dawn of a New Era*

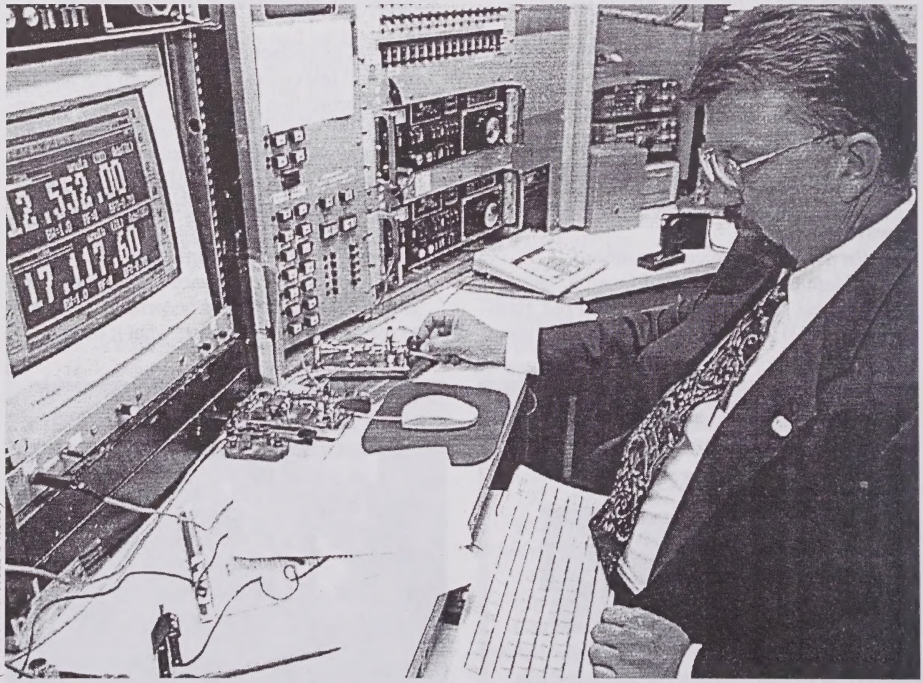
*Globe Wireless® leads the way for marine communication as the last remaining Morse code transmitters and receivers in North America shut down.*

Foster City, California, USA (12 July 1999): A new era begins at 2359 UTC today as modern technology provides reliable, low cost, and easy-to-use communication for the marine industry. Leading the way is GlobeEmail© offered by Globe Wireless. GlobeEmail is an electronic messaging system which provides Email, Fax, and Telex capabilities via a Global Radio Network® of High Frequency (HF) stations and via satellite. Over the last five years there has been a tremendous increase in GlobeEmail usage along with a steady decline in wireless Morse code transmission (CW). This trend has prompted the company's decision for the closure of CW operations at radio stations WNU, WCC, KPH and KFS, the last such remaining operations in North America.

"We are proud to be a front runner in the modernization of marine communications," stated Ken Jones, Chief Executive Officer for Globe Wireless. "The company has been a pioneer in the marine communications business, and we will continue to develop innovative ideas using modern technology to enhance communications for ships at sea."

### *The Four Closing Transmissions*

Following are the formal messages from WCC, WNU, KPH and KFS sent 12 July 1999 to announce the end of CW operations. (From an event agenda supplied by Globe.)



(Globe Wireless Photo)

*Tim Gorman, Director of Operations at Globe Wireless, sends the final Morse code message from station KFS.*

**4:40 P.M.**
**Final Closure of WCC**

Message Sent By: Walter J. Kane III,
Regional Sales Director
Frequencies: 12826.5, 17117.6, 500

Message Text:
BT
CQ DE WCC
IN 1901, CALLSIGN WCC WAS ASSIGNED TO THE SOUTH WELLFLEET MASSACHUSETTS WIRELESS TELEGRAPH FACILITY OPERATED BY GUGLIELMO MARCONI. MORSE CODE SIGNALS FROM WCC HAVE BEEN HEARD AROUND THE WORLD EVER SINCE. TODAY WE RETIRE WCC FROM WIRELESS TELEGRAPH OPERATIONS. WCC WILL CONTINUE TO SERVE THE MARITIME COMMUNITY IN ASSOCIATION WITH THE GLOBAL RADIO NETWORK OPERATED BY GLOBE WIRELESS.
AR DE WCC SK

**4:47 P.M.**
**Final Closure of WNU**

Message Sent By: Rory Davis,
Chief Engineer
Frequencies: 12826.5, 17117.6, 500

Message Text:
CQ DE WNU
BT
PEARL RIVER RADIO/WNU NOW CEASES RADIOTELEGRAPH SERVICE AFTER EIGHTY-SEVEN YEARS OF CONTINUOUS OPERATION. WE WILL CONTINUE TO SERVE THE MARINER THROUGH OUR ELECTRONIC MAIL SERVICE AS PART OF THE GLOBE WIRELESS NETWORK.
AR
73 DE WNU CL

**4:52 P.M.**
**Final Closure of KPH**

Message Sent By: Paul Zell,
Coastal Station Operator
Frequencies: 8444.5, 17184.8, 500

Message Text:
CQ DE KPH BT
WE NOW CLOSE THE RADIOTELEGRAPH OPERATION OF STATION KPH. SINCE 1904, STATION KPH HAS DISTINGUISHED ITSELF AS ONE OF THE MOST WELL KNOWN AND RESPECTED CALL SIGNS IN THE WORLD, AND WILL CONTINUE TO DO SO AS PART OF THE GLOBAL RADIO NETWORK OF HF STATIONS
NW CL DE KPH SK

**4:59 PM**
**Final Closure of KFS**

Message Sent By: Tim Gorman,
Director of Operations
Frequencies: 8444.5, 17184.8, 500

Message Text:
CQ DE KFS
THIS IS THE FINAL CW TRANSMISSION FROM STATION KFS - THE LAST COMMERCIAL RADIOTELEGRAPH STATION IN NORTH AMERICA.APPROPRIATELY, WE CLOSE CW AND EMBARK ON A NEW ERA OF COMMUNICATION WITH SAMUEL F.B. MORSE'S WORDS OF 155 YEARS AGO
BT NW CL 73 BT WHAT HATH GOD WROUGHT BT DE KFS SK

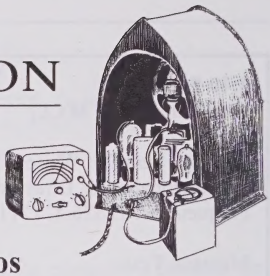
### *...and a surprised Protest*

Radio Historian Bart Lee (San Francisco, CA), who supplied *The OTB* with the Globe press kit for this event, attended the closing ceremonies at KFS. He reports that, after the closing message was sent by operator Paul Zell, a Panamanian registered freighter off the coast of Mexico came up on frequency. Its Mexican operator had no advance knowledge of the policy change and expressed his surprise and chagrin. Paul then took five minutes, sending and receiving in Spanish, to explain the situation to the shocked operator.

*Thanks to George Hausske (Wheaton, IL) who sent The OTB a newspaper clipping about this event.*

# EQUIPMENT RESTORATION

EDITED BY **KEN OWENS**, 478 SYCAMORE DR., CIRCLEVILLE, OH 43113
PLEASE SEND CORRESPONDENCE DIRECTLY TO THE ABOVE ADDRESS,
INCLUDING SASE FOR REPLY.



## Six-Volt Tubes and Auto Radios

In the early days there were some heroic efforts to install radio in automobiles. Designers faced formidable difficulties, including the lack of tubes with heater ratings compatible with the 6-8V car electrical system, lack of suitable plate voltage sources, limited antenna space, electrical noise, and variable signal strength in a moving vehicle.

One early attempt was the Philco "Transitone" Model 3. It used three 24As as RF amplifiers in a TRF circuit. The detector was a 71A connected as a diode followed by two 01A audio amplifiers and a 71A output. The 24A filaments were connected in series. Filaments of the other tubes were connected in parallel and used a fixed dropping resistor to adjust voltage. Batteries furnished the B+ plate voltage. This sounds crude, but it was state-of-the-art in 1930.

In 1931, responding to intense pressure from set makers, a series of tubes with 6V heaters was developed for auto radio. The Type 36 RF tetrode, the Type 37 triode, the Type 38 power pentode and the Type 39 remote pentode issued within a few months of each other. Shortly thereafter the Type 85 duodiode-triode came out.

These tubes were eagerly incorporated into auto radios. The Philco Model 7 used them in a superhet circuit. The Atwater Kent Model 81 used them in a TRF circuit. Both still used batteries for the B+ plate supply. Majestic used a motor-generator for the B+.

The Mallory vibrator power supply was developed some time in 1932 and was immediately adopted. Indirectly heated rectifiers like the Types 1-V and 84 were issued for use with it. Raytheon made a cold-cathode Type BR rectifier tube for auto use. Tubes and circuit designs were improved, but, despite its problems, the vibrator B+ supply reigned supreme until the advent of transistors in the mid-1950s.

Before the advent of all-steel body construction, antennas were made by installing a piece of screen under the fabric car top. Insulated wires stretched under the running boards were also used.

The whip antenna soon became standard which simplified front end design. Receiver front ends could be optimized for one kind of antenna instead of having to be designed to accept many kinds.

Another innovation developed just prior to World War II was permeability tuning. Widely used in car radios and to some extent in home sets, this system tuned by moving iron slugs within the coils. It was compact and eliminated the bulky variable capacitor. Space behind the dash was becoming limited, and smaller radios were welcome.

These 6V tubes were also used for home radios to simplify inventory and rapidly displaced the 2.5V and 5V tubes. No new 2.5V tubes were issued after early 1934.

Many of these auto radios were superb sets. They gave excellent reception with a minimal antenna under all sorts of adverse conditions. Most of us ignore them today unless we have the car to go with them. As a result, millions have been junked.

♦ ♦ ♦ ♦

*Ray Larson (W. Los Angeles, CA) has sent the following account of adapting an otherwise useless car radio to 120V AC operation.*

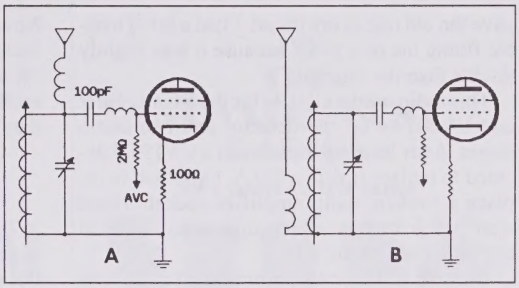
My first introduction to radio was working for a radio store in the late 1940s. They did a fair amount of car radio work, and my job was to remove the sets for servicing. Later, when I had learned more, I fixed sets. This consisted mostly of replacing vibrators and 0Z4 rectifiers. I was impressed with the quality of the General Motors sets.

I recently acquired a Delco radio for a 1950 Oldsmobile. Having once owned such a car, it brought back a lot of memories. I wondered how easy it would be to adapt the set for wall plug operation.

In my junk box I found a power transformer which was the same size as the vibrator transformer. It had a 6V filament winding and a suitable high-voltage winding. I replaced the vibrator transformer with the AC one and installed

silicon diodes in place of the original 0Z4—a really miserable tube.

The set worked, but had two problems. The first was lack of sensitivity caused by the mismatch of my long wire antenna with the input circuit which was designed for a whip. At the time, my favorite station was a distant one. A short antenna would not bring it in. The input circuit is shown at "A" in the diagram. The radio was permeability tuned. The variable caps in the diagram are trimmers for alignment. I wound about 10 turns of thin magnet wire over the cold end of the tuning coil to make a primary as shown at "B" and bypassed the loading coil.




*Original Delco 1950 Olds radio input circuit (A), and as modified by Ray Larson (B).*

That cured the sensitivity problem, but the second problem remained—an annoying 60 Hz hum. This was traced to magnetic coupling between the power transformer and the output transformer. The set hummed merrily with no tubes in it! There wasn't enough room to reorient either transformer, so I decided to go outboard.

I built a power supply in a box with a solid-state rectifier included. Rather than feed a high AC voltage into the set and use its rectifier circuit, I felt it would be safer to feed the set with a lower DC voltage. The original tube lineup was 6SK7 RF, 6SA7 converter, 6SK7 IF, 6SR7 detector-audio and P-P 6V6 output.

The connecting cable required 5 wires: one common, one filament, one B+ and two for the on-off switch. The size cable I had caused too much voltage drop in the filament circuit, so I decided to exchange the tubes for their 12V equivalents, thus cutting the filament current in half. The transformer I was using in the power supply also had a 12V winding on it.

I didn't have any 12V6 tubes, but I did have lots of 12A6s which are almost identical so I used them. This cured the hum problem and I enjoy listening to the set. It is a much better performer than the average home set.

This was a learning experience for me. Anyone wanting to convert a car radio to AC line operation can avoid some of the work I did and also preserve the original circuit. Just remove the vibrator and rectifier tube and feed B+ into the set (make sure the filter caps are good).

You will have to modify the antenna input, but you can do it in such a way that the original configuration can quickly be restored. You might be able to design an outboard circuit to match the antenna input to a long wire instead of a whip and entirely avoid changing the radio.

If your cable is heavy enough, you may have adequate filament voltage at 6V and not need to change tubes. Even if you do use 12V tubes, this doesn't alter the set in any way. Wiring can be done in such a way that the set can easily be restored to the original in case someone desperately wants your set for their antique car.

♦ ♦ ♦ ♦

*Alton DuBois, Jr. (Queensbury, NY) writes of his experience with a National Regenaformer:*

Inspired by an article by Ken Owens (*OTB*, Vol. 40, No. 1), I contacted him for details on the Browning-Drake "Raegenaformer" and started to collect parts to build one for myself. Earlier a friend had told me about an old radio in his shed that I could have, but it was not accessible at the time.

In July he called me to come get it. I was surprised to see a complete Browning-Drake Regenaformer, complete except for tubes. I could have it, but there were conditions. My friend wanted to keep the cabinet, front panel and National "Velvet Vernier" tuning knobs.

A few days later, I made him a counter offer. I would give him a new sheet of acrylic panel and a set of Atwater Kent knobs. "No," he said. He had bought the set just to get the hard rubber panel and knobs for a Tesla coil project but had no use for the radio itself. He finally agreed to swap knobs, but was adamant about the panel. I didn't want to endanger the deal, so I agreed to use the acrylic panel myself.

The chassis was a sheet of hard rubber or Bakelite, and both it and the panel appeared to have been factory drilled. There were no hole locating marks on either. Possibly this set was made from a complete kit of parts. Wiring was done on both sides of the chassis, and parts were mounted on both sides also. The chassis was attached to the panel with right-angle brackets.

I took off the rubber panel and used it as a template to cut and drill my acrylic panel then

gave the old one to my friend. I had a bit of trouble fitting the new panel because it was slightly thicker than the original.

This radio used a UV199 for the RF amplifier and UV201As for the detector and two audio stages. After learning the price of a UV199, I decided to replace it with a 201A. I also had to replace a broken audio amplifier socket. There were a few broken solder joints which I fixed and then fired up the set.

It roared and snorted. Fortunately it came with a hand-drawn circuit diagram, so I did a point-to-point check. I found that the ground end of the antenna coil and the rotor of its tuning capacitor were not connected to A-, and there was no evidence that they ever had been.

I made the connection, and the set settled down to operate like a normal regenerative set. Now it is waiting for me to build it a new house. Incidentally, the tag on my coil also is spelled "Raegenaformer". Maybe someone made a spelling mistake, and, rather than waste the tags, they used them anyway.

♦ ♦ ♦ ♦

James A. Fred (Cutler, IN) tells me that Bigelow Electronics, P.O. Box 125, Bluffton, OH 45817 has about 50 kinds of resistance wire as well as bobbins and forms for sale. If you want to rewind your AK grid dampers (see my column in the previous *OTB*), I recommend an enameled wire in the 40Ω per foot range. With the enamel coating, you don't have to worry about shorted turns, and the necessary length fits the Bakelite strips quite nicely. Thanks, Jim.

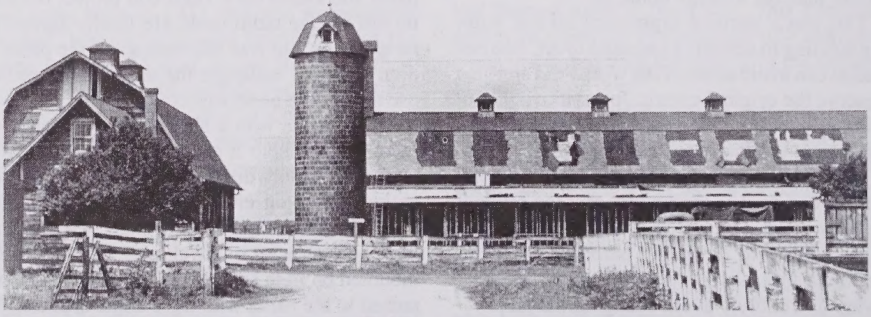
# VINT HILLS REPRISE

*Photos Courtesy Richard Bluhm, W2KXD*

In our last (August) issue we ran Bob Morris's story of his work in developing a radio monitoring station for the Signal Corps during World War II. The station, which became a model for others to be built later in the war, was located at Vint Hill Farms near Warrenton, Virginia. Bob became a Silent Key in 1997, but his manuscript reached *The OTB* courtesy of close friend Bud Hall, who also obtained permission from Bob's widow for us to print it.

In discussing the article with Bud, I told him I regretted that we didn't have any illustrations to go with this interesting story. A little while later, just after the issue went to press, I received these nice shots of the Vint Hills installation in the mail. They came to us courtesy of Richard Bluhm, W2KXD, another close friend of Bob's, who was also instrumental in getting the original story to Bud. I'm sure our readers will enjoy seeing the photographs as much as I did. —MFE

*Operational personnel at Vint Hill watch over a bank of disc recorders in this 1945 shot.*



*The Vint Hills Farm buildings served both the monitoring station and a training facility. A detachment from the 2nd Signal Service Battalion was housed here.*

***AWA Review Volume 12 Now Available***

# The Atwater Kent Radios

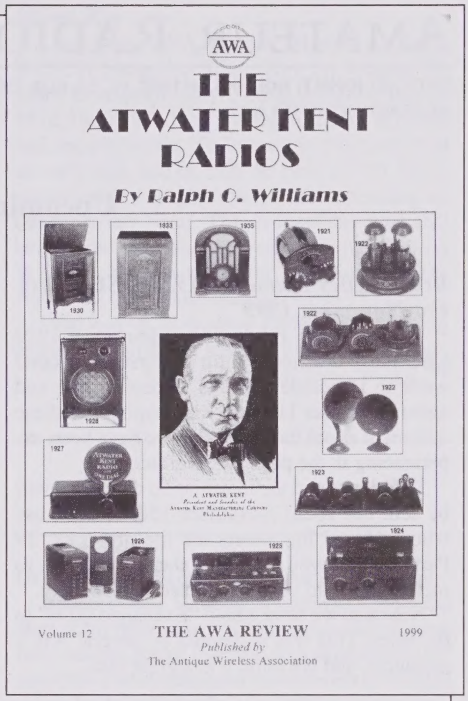
By Ralph O. Williams

One of the giants of American industry, by any standard, was Arthur Atwater Kent, who, in the brief span of fourteen years, designed, manufactured, marketed and sold some five million radios. While Kent became exceedingly wealthy in the process, he in turn bequeathed to us a legacy of a myriad of unique, high quality products. These products of his energy and invention are the topic of *The AWA Review*, Volume 12.

The author, Ralph Williams of Orient, NY, has spent a large part of his adult life studying Atwater Kent, his methods, and his radios, and is widely recognized as the world expert on the subject. Since his retirement, he has founded a private museum, one of the most complete in the world, devoted to the man and his radios. The results of this dedication have also appeared through the years in various writings, including a series in *The AWA Review*, Volumes 1, 2, 3, and 10 in 1996. Other journals, such as *Radio Age*, have also published his material, which has proven to be very popular. Unfortunately, with the possible exception of the 1996 material, these publications are all now out of print and must be obtained through private sources.

The sheer quantity of material in Volume 12 of *The AWA Review* has necessitated a much larger publication than usual. To assemble the details and present them in a coherent and progressive manner has been a monumental job on the part of the author, and the book has been several years in preparation.

This book is *not* simply a reprint of prior writings, but is a complete new work, covering the entire range from the first of the radio laboratory instruments to the later superhets. Details not previously printed are included. The book boasts over 100 pictures. Our author has also commented on the changing face of the radio art and the socioeconomic climate of the 1920s and 1930s, which provided the challenges so important to the success of Atwater Kent. This background of the era is valuable to any student of the time and collector of the artifacts, and is not necessarily limited to those interested in Atwater Kent. There are three appendices, including a section on refinishing and restoring breadboards, an index of all models, and a separate insert detailing the radios and their characteristics.

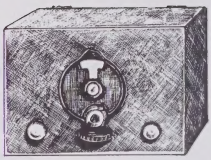



The beginning collector will find here a wealth of subject material to work with. The more experienced collector will find information that can help clear the confusion regarding details of the various sets as they were developed. This book is also presented to help focus attention on this remarkable man and his contributions, and perhaps stimulate all collectors to new efforts.

*The AWA Review, Volume 12, 1999.* "The Atwater Kent Radios," by Ralph O. Williams. Size: 6 by 9 inches; 320 pages, soft cover; illustrated. Price: $29.95 postpaid in the US and Canada; $35.00 US funds elsewhere. Order from Edward M. Gable, 187 Lighthouse Road, Hilton, NY, 14468.

# AMATEUR RADIO

EDITED BY **JOHN F. ROLLINS, W1FPZ**, HC 33, BOX 150, ARROWSIC, MAINE 04530
*PLEASE INCLUDE SASE FOR REPLY.*



## Upcoming Events

### *Bruce Kelley Memorial 1929 QSO Party For November 1999*

This year, the Bruce Kelley Memorial 1929 QSO Party is scheduled for the first and second week in December, that is December 4-5 and again December 11-12. We are hoping that these dates will avoid the QRM that we have been experiencing in the past. We shall see!

Log sheets and the information data sheet will be sent out about November 15th to all those who returned log sheets for the previous '29 Party. Others who desire log sheets may write to me. Please send your completed logs in early.

Note that we have added "Exchange QTH" to the rules. This was suggested by several AWA members, and we think it is a great idea.

- *Dates and Times:* December 4-5 and December 11-12. Start Saturday at 2300Z (6:00 p.m. EST) and finish Sunday at 2300Z (6:00 p.m. EST), both periods.
- *Objective:* Contact as many other AWA members as possible. Exchange RST, name, QTH, type of transmitter, year and power.
- *Rules:* Transmitters must be 1929 or earlier self-oscillator designs such as the Hartley, TNT, PP tuned grid tuned plate, MOPA etc. Participants are encouraged, but not required to use straight keys.
- *Power:* Transmitters are limited to a power input of 10 watts or less. However, between the hours of 500Z (12 p.m. EST) and 1300Z (8 a.m. EST), power may be increased to 20 watts to help make E-W contacts.
- *Frequencies:* Operate between 3550 KC and 3580 KC.
- *Logs:* Send all logs to John F. Rollins, HC33 Box 150, Arrowsic, Maine 04530.

### *Linc Cundall Memorial Old-Time CW Contest for January 2000*

The annual Old Time CW Contest will be held during the last week in January. The change from February to January is being made in hopes of avoiding QRM from the RTTY contest, which appears to have taken over the band in early February. Don't forget to add your QTH in your QSO exchange — new this year. Just the State will be sufficient.

Log sheets and information sheets will be sent out about January 15th to all those members who submitted log sheets in last year's contest. Anyone else desiring a log sheet may write to me.

- *Dates and Times:* Start at 6 p.m. EST (2300Z) on Wednesday, January 26 and end at 6 p.m. EST (2300Z) on Thursday, January 27. Repeat on January 29 and 30.
- *Objective:* Contact the greatest number of AWA members. When calling, use (for example) "AWA AWA de W2AN". On contact, exchange signal report, name, QTH, year of equipment, such as "TX 36" for a 1936 transmitter and "RX 34" for a 1934 receiver. Send "Mod" for modern (1943 or later) year.
- *Rules:* A station will be scored only once on each band. Non-member contacts, and stations not submitting logs, will not count.
- *Frequencies:* 1800-1820, 3580-3600, 7030-7050, and 14060-14070 kHz ±QRM. Concentrate 20 and 160 meter contacts on the hour.
- *Scoring:* QSO Zones: "E" eastern zone US Districts 1,2,3,4,8,9 plus VE1 VE2, & VE3; "W" western zone, US Districts 5,6,7,0 plus VE4, VE5, VE6 & VE7. "DX" zone: All others.
- *QSO Points per Contact by Zone:* "E" to "E" or "W" to "W" 1 point; "E" to "W" or "W" to "E" 2 points; "E", "W" or "DX" to "DX" 3 points
- *Equipment Multipliers:* MOD TX *and* RX=1; OT TX *or* RX=2; OT TX *and* RX 3.
- *Power Multipliers:* input to final up to 4.9 watts = 4; 5-24.9 watts = 3; 25-100 watts = 2; 100+ watts = 1.
- *Determining Total Points per QSO:* (1) Find QSO Points for contact. (2) QSO Points × your equipment multiplier × your power multiplier = total points for the contact.
- *Scoring Examples:* **Example 1**, KB2PLW contacts W1FPZ; (a) both are in "E" zone

for one QSO point; (b) both have OT TX and RX for a 3 multiplier; (c) both are operating at 10 watts for a 3 multiplier. Therefore the contact is worth 1 pt × 3 × 3 = 9 points for each operator. **Example 2,** W6TDP contacts W2ER; (a) "W" to "E" contact counts as two QSO points; (b) W6TDP has OT RX and OT TX running 20 watts; (c) W2ER has MOD RX and OT TX running 50 watts. Therefore the contact is worth 2 × 3 × 3 = 18 points for W6TDP and 2 × 2 × 2 = 8 points for W2ER.

- *Logs:* Send all January OT Contest log results to John F. Rollins, WlFPZ, HC 33, Box 150, Arrowsic, Maine 04530.

### *Silent Key*

Long time AWA member, Herbert L. Snell, W2FCH became a Silent Key on August 10, 1999. Born in Brooklyn, Long Island on June 3, 1912, Herb had a long and varied career in police and security work. His interest in radio began at an early age, and in 1929 he built a TNT transmitter using a single type 10 tube operating on the 80 meter band. This transmitter was still being used until shortly before his passing. As W2FCH, he was a regular participant in the AWA '29 QSO Party and also the OT Contest.

I had known Herb since 1938, and I am going to miss him on the air and in our regular meetings.

*—John Marshall Etter, W2ER*

## *About Our* **Feature Article Authors**

EDWARD M. GABLE, K2MP/W2AN
*The New Hammond Museum*

Ed was appointed Curator of the AWA Electronic Communication Museum in 1997, when AWA founder Bruce Kelley found it necessary to resign because of poor health. Ed has been an AWA member for more than 20 years and has sat on the board of Directors for almost half that time. He is retired from a 32-year career at Harris Corporation's RF Communications Division, where he held management positions in engineering, manufacturing and quality control.

Ed was first licensed in 1957 with the call W2MPM, shortening it to his present call after receiving his Extra Class ticket in 1977. He is past President of the Rochester Amateur Radio Association, twice chairman of the Rochester VHF Group, past President of the Rochester Radio Repeater Association

Also very active in the ARRL, Ed is an Assistant Section Manager in Western New York and an Atlantic Division Director. He was recently named the Atlantic Division's Amateur of the Year, in part for his work in preserving the history of radio.

FRANK J. LOTITO, K3DZ
*Build an Early 1920s One-Tube Transmitter*

Frank has a BS in electrical engineering, but for most of his 30-plus working career has primarily done mechanical engineering from a quality point of view for a large international safety equipment company. He has held the call K3DZ for over 20 years, and also possesses an FCC General Phone license with radar endorsement.

He has been a home brew enthusiast from the start of his interest in amateur radio. His projects have run the gamut from modern solid state VHF and UHF FM synthesized transceivers to designs going back to the early 20s. Frank is most definitely a strong proponent of the "file to fit—fit to file" use whatever you have in your junk box school.

ROBERT E. LOZIER, JR.
*What Do We Do Now?*

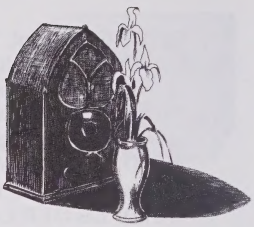
Bob is employed in the engineering department of Siemans Meter Div., a manufacturer of electric power meters. He enjoys preparing radio exhibits and constructing electromechanical scanning television equipment. He has also developed lectures on restoration and preservation techniques, a history of the Magnavox Company, and radio collecting in Italy. In recent years, Bob has become interested in the development of radio broadcast receiver manufacturing outside of the U.S.A.

ABEL SANTORO
*Argentina's First Valve Factory*

Abel is a tube collector and a restorer of vintage radio items. He has a special interest in the early development of both electronic tubes and wireless.

Abel holds amateur radio license LU8DXI, and is an electronic technician on the staff of the electronics laboratory of the Argentine Institute of Radioastronomy (IAR).

# RECENT RADIO, TV AND ENTERTAINER OBITUARIES



COMPILED BY **CHARLES S. GRIFFEN W1GYR**
1225 NEW BRITAIN AVE., WEST HARTFORD, CT 06110-2405

*Note: When known, the date of death is indicated in parenthesis.*

MARTIN ZAMA AGRONSKY, 84, (7-25-99) journalist. Agronsky began his career in newspaper journalism in 1936, but later become a war correspondent on radio. From 1943 until retirement in 1988 he was a Washington correspondent, foreign correspondent and commentator. Agronsky created the TV talk show *Agronsky & Company* which featured reporters informally discussing issues of the day among themselves. It began on WTOP(TV) in Washington but within a year was spun off into a program syndicated to commercial and public television stations around the country. The talk show was telecast from 1970 to 1988.

LES BARCUS, 89, (3-4-99) audio engineer and inventor of music amplifiers. With his partner, violinist John Berry, he created matchbook-size sensors that helped amplify the sounds of stringed, percussion and wind instruments. Berry and Barcus founded Barcus-Berry Inc. in 1964 and at first marketed a system to record instrumental music without microphones. The technique was patented as the Barcus-Berry Direct Recording Process. In the 1980s they helped Bob Crooks develop a high definition signal processing device that increases the sound quality of live and recorded music. BBE Sound Inc., a separate venture-backed firm, took over the original Barcus-Berry Inc. when the two co-founders retired in 1994.

ANITA CARTER, 66, (7-29-99) country music singer. With her sisters, June and Helen, they performed with the Carter Family as children and then with their mother as the Carter Sisters and Mother Maybelle. The Carter Sisters joined WSM's Grand Ole Opry show in 1950, opened programs for Elvis Presley and began singing with Johnny Cash in 1961. They appeared on ABC Television's *The Johnny Cash Show* from 1969 to 1971. Anita scored a number two hit in 1951 with *Down the Trail of Achin' Hearts* and sang popular duets with Hank Snow and Waylon Jennings.

ALAN M. DORHOFFER, 61, K2EEK (7-19-99) Editor of *CQ* Magazine. Dorhoffer spent his entire professional career with *CQ* beginning as an Assistant Editor in 1964 and becoming its tenth Editor in 1976. He had been co-owner of the amateur radio publication since 1979.

CLIFTON FADIMAN, 95, (6-20-99) editor, writer, critic, a founder of the Book-of-the-Month Club and host of the popular 1930s radio show *Information Please*. Fadiman moderated the quiz show for ten years beginning with its first broadcast on the NBC Blue Network on May 17, 1938. Later, *Information Please* was heard on the NBC, CBS and Mutual networks before the earlier transcribed programs went into syndication to various stations in 1950. He appeared on TV as the host/emcee of *This is Show Business*, which was seen first on CBS (1949) and later on NBC (1956).

HELEN FORREST, 82, (7-11-99) big-band vocalist. She began her career performing on WNEW in New York City followed by appearances with trumpeter Bunny Berigan on CBS Radio. She later sang with Artie Shaw (1938-1939), Benny Goodman (1939-1941) Harry James (1941-1943) before going solo in 1944. Forrest recorded over 500 records which included *All the Things You Are, The Man I Love, I Don't Want to Walk Without You* and her signature song *I Had the Craziest Dream*. She was voted top female vocalist in 1942. Forrest was heard on many radio shows including *The Dick Haymes Show* (1944-1946) and appeared in such films as *Private Buckaroo* (1942) *Springtime in the Rockies* (1942) and *Bathing Beauty* (1944).

SANDRA GOULD, 73, (7-20-99) actress. She was best known as the nosy next-door neighbor Gladys Kravitz on the TV series *Bewitched* and the voice of Betty Rubble on the *Flintstones*. Some of her other TV credits include appearances on *I Love Lucy, The Twilight Zone* and *My Three Sons*. She worked on hundreds of radio programs, most prominently *Duffy's Tavern*, on which she played Miss Duffy. Gould appeared in four Doris Day films, including *Romance on the High Seas* and *It's A Great Feeling*, as well as in other features in-

cluding *The Ghost and Mr. Chicken* and *The Barefoot Executive*.

HILLIS W. MOLT, 95, (5-3-99) pioneer broadcaster. After graduation from college he joined the staff of Westinghouse Electric Company in Springfield, MA constructing Radiola IIIs. Holt built a number of radio stations including WPOP, WRCH and WNEZ in Hartford, CT and WKCI and WELI in New Haven, CT and WINF in Manchester, CT, where he was also Chief Engineer. He also provided engineering services to other broadcasters and served on the board of the Nutmeg Broadcasting Corporation for twenty years.

DEFOREST KELLEY, 79, (6-11-99) actor. He is probably best remembered by TV and movie fans for his role of Dr. Leonard "Bones" McCoy on the NBC series *Star Trek* (1966-1969). Kelly also appeared as "Bones" in all six Star Trek movies that featured the original cast, the last being *Star Trek: The Undiscovered Country* in 1991. He was discovered by a Paramount talent scout and made his film debut in *Fear in the Night* (1947). Besides a number of Paramount westerns, some of his other film credits include *The Man in the Gray Flannel Suit* (1956) and *Raintree Country* (1957).

VICTOR MATURE, 86, (8-4-99) actor. The brawny film star of the 1940s and 1950s began his career as a student at the Pasadena Playhouse in the mid 1930s. Mature's first film appearance in *The Housekeeper's Daughter* (1939) resulted in 20,000 fan letters and helped launch his career. Some of his 55 film credits include *My Gal Sal* (1942) with Rita Hayworth, *Song of the Islands* (1942) with Betty Grable, *Sampson and Delilah* (1949) with Hedy Lamarr, *My Darling Clementine* (1946), and *Million Dollar Mermaid* (1952) with Esther Williams and *Chief Crazy Horse* (1955). Mature's wise investments allowed him to retire by the time he was 46, although he did return to acting from time-to-time.

JOHN T. MULLIN, 85, (6-24-99) electrical engineer. After WWII he brought two German magnetophones (high-fidelity magnetic audiotape recorders) to the United States from Paris. Mullin and William A. Palmer improved them and in 1946 their creation became the first in the nation to produce a master tape that was turned into a commercial recording: *Songs by Merv Griffin*. Bing Crosby later provided financial backing for Mullin and Palmer's venture. While the two men worked for the Ampex Corporation they made the first commercial audiotape recorder, called the Model 200. Beside working with Crosby Enterprises, Mr. Mullin spent 28 years at the 3M Company, which bought Crosby Enterprises in 1956, as head of its Mincom Division. He retired in 1975.

RICHARD MORRIS PACK, 83, (7-1-99) broadcasting executive. Pack began his career at WNYC(AM) in New York City in 1938. He worked at several other local stations before joining NBC in 1952 as Director of Programming for the company's owned and operated television stations. There, Pack created *The Steve Allen Show*, which later became *Tonight With Steve Allen*. In 1955 he joined Group W as VP of Programming, where he conceived the all-news radio format which the firm pioneered with WINS(AM) in New York City. Pack was Executive Advisor to the Chairman of Westinghouse from 1972 until his retirement in 1976. He was also the Editor of *Television Quarterly* from 1981 until his death.

MARTHA ROUNTREE, 87, (8-23-99) producer and co-creator of *Meet the Press*. This radio public affairs program, founded by Rountree and Lawrence E. Spivak, began on the Mutual Broadcasting System on October 5, 1945. Spivak was the panelist and Rountree the producer. On November 6, 1947 it also became a TV program on NBC and, beginning in 1952, the network picked up the radio portion, which was simulcast. *Meet the Press* is still carried by NBC, making it television's longest-running program. Rountree also produced several other radio and television shows and founded *Leave it to the Girls*, radio's first panel show, which was heard on Mutual beginning on October 6, 1945.

SILVIA SIDNEY, 88, (7-1-99) actress. She became one of Paramount studio's top leading ladies in the 1930s, along with Miriam Hopkins, Claudette Colbert and Marlene Dietrich. Sidney made her film debut in *Broadway Nights* (1927) and went on to star in such pictures as *Street Scene, An American Tragedy* (both 1931), Alfred Hitchcock's *Sabotage, You Only Live Once* (1937) and *Dead End* (1937). Her last firm appearance was in *Mars Attacks!* in 1996. Some of her stage credits include *The Gentle People, Pygmalion, Tonight at 8:30* and *Barefoot in the Park*. A sampling of Sidney's television appearances includes *Playhouse 90, Broadway TV Theatre, Star Stage* and *An Early Frost*.

JOHN STOKES, (8-5-99) author and radio historian. Stokes had a career in radio servicing with Turnbull and Jones followed by a tour of duty with the Royal New Zealand Air Force during WWII. During the 1960s he contributed a regular service column to the New Zealand magazine *Radio and Electrical Review*. In 1972 he founded the New Zealand Vintage Radio Society

*(continued on page 63)*

BY ABEL SANTORO

# ARGENTINA'S FIRST VALVE FACTORY

Radio valve manufacturing got off to a very slow start in Argentina. As late as 1933 no valves were manufactured here, though our electronic industry was making (in small quantities) all of the other electronic components necessary for radio receiver construction. Argentina had to rely on imported valves.

Mr. Teodoro Prieto, a businessman who had began making radio batteries in Buenos Aires in 1922, decided to correct this situation. He and ten other local radio businessmen raised $100,000 to start a new company for the manufacture of valves. Called "Sociedad Anónima Industrial Radiotelefónica Argentina" (S.A.I.R.A.), the firm was founded on November 28, 1933 with Mr. Prieto as president. The Argentine government approved the establishment of the company on April 9, 1934.

The S.A.I.R.A. factory, located on Honduras Street in Buenos Aires City, produced its first valve on July 20, 1934. This valve can be seen today at the Museo de Correos y Telégrafos (Post and Telegraph Museum) of Buenos Aires.

The first valves made by S.A.I.R.A. were the types 80, 47, 58 and 57. Then the factory tooled up to make types 43, 78 and 77. By 1935, the firm was also manufacturing types 2A5, 30, 12Z3, 35, 24A, 32 and 34.

*Founder and President, Teodoro Prieto.*

At the beginning, the factory employed only twenty workers. By the end of 1935 there were a hundred and thirty, mostly women. Production was 700 valves a day, and the capital stock of the company was valued at $400,000. In September 1936 the production reached 1,200 valves a day. The capital stock was $500,000 and all American types of receiving valves were being manufactured.

The total demand for valves in Argentina in 1936 was 5,000 valves a day. The valves made by

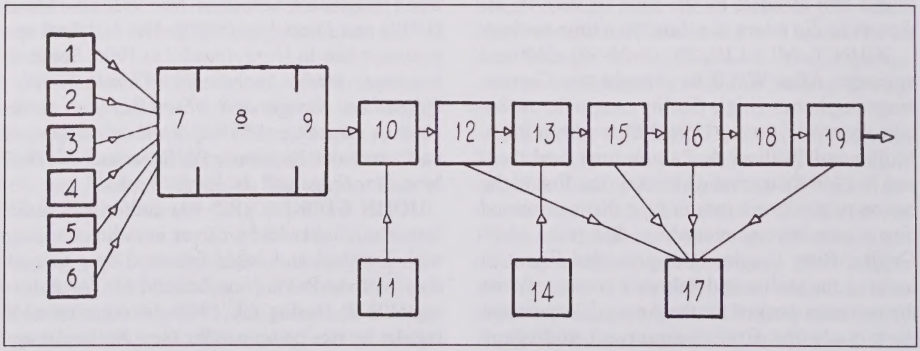



*Fig. 1. Layout of the S.A.I.R.A. plant.*

**AUTHOR'S ADDRESS: (IAR) CASILLA DE CORREO NO.5, VILLA ELISA (1894), BUENOS AIRES, ARGENTINA**

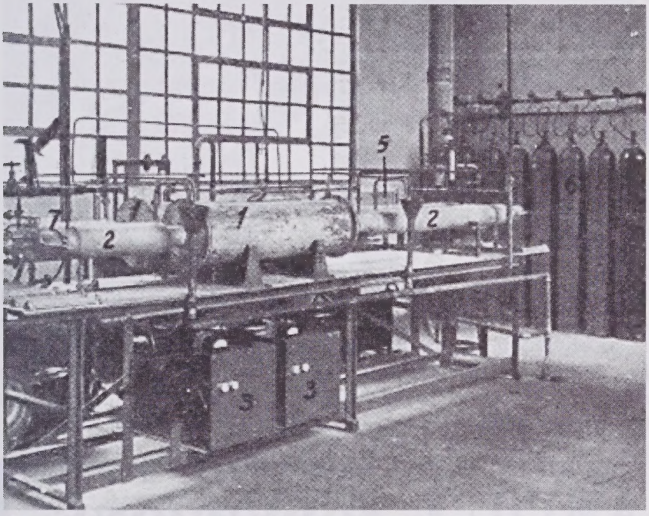


*Fig. 2. Main parts of hydrogen furnace used for outgassing.*

S.A.I.R.A. were of good quality and lower priced than their imported counterparts. Defective units were replaced immediately at no cost, making the brand very well accepted by consumers.

The drawing in Figure 1 shows the layout of the plant. Parts for filaments, cathodes, grids, anodes, shielding, and mica spacers were kept at locations (1) through (6). The outgassing of internal parts was carried out at (7). After assembly (8) and quality control (9), the bulbs [stocked at (11)] were installed at location 10 and exhausted at (12). Assembly of the bases, which were stocked at (14) was done at (13). Cathodes were activated at (15) and the first electrical control tests made at (16). At (18) a control check for proper cleaning was carried out and additional electrical tests were done at (19). Laboratory facilities were at location (17).

The hydrogen furnace for the outgassing of internal components is seen in Figure 2. The anodes, grids, shielding and other small parts were placed in molybdenum containers and heated to 1,200 degrees Kelvin in a hydrogen atmosphere. Heating was continued for between 5 and 15 minutes depending on the size and mass of the materials. The hydrogen was supplied by the cylinders at (6), then dried in a potassium hydroxide chamber (4) *[number not clear, but apparently this is behind the chamber at (1)—Ed]* and purified by being passed over red-hot copper plates (at 5). The outgassing was carried out in the chambers at (1), which were heated by resistance elements powered by the transformers at (3). The outgassed elements were stored at (2), where they were allowed to cool slowly,

*(continued on page 62)*

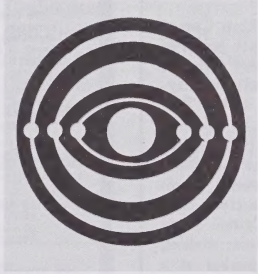
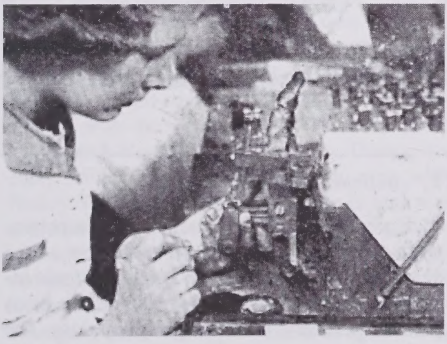
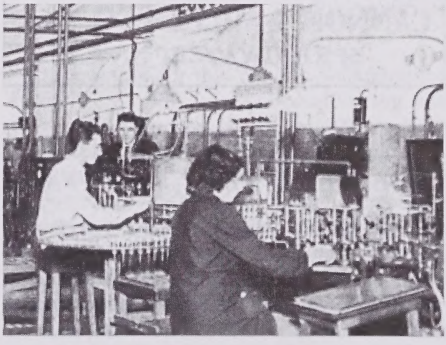


*Fig. 3. Brass pattern for a type 43.*





*Left: Worker assembling a Type 43. Right: Exhausting and sealing equipment.*

# THE LOUDSPEAKER

EDITED BY **FLOYD A. PAUL, W6THU**, 1545 RAYMOND, GLENDALE, CA 91201
*PLEASE INCLUDE SASE FOR REPLY.*

## Two Rare Speakers

Going through my archives, I came across two additional horn speaker ads representing products that are rarely seen (see "Advertised But Unseen" — my column for May, 1999). It is felt that these are important enough to be brought to your attention.

Two collectors have written that they own the Qualitone horn mentioned in the May column. Perhaps some of you may have examples of the two products shown here. The ads come from the *Popular Radio* issues May 1923 (Coryphone) and September, 1924 (Camco). Both are rare because neither company sponsored much advertising.

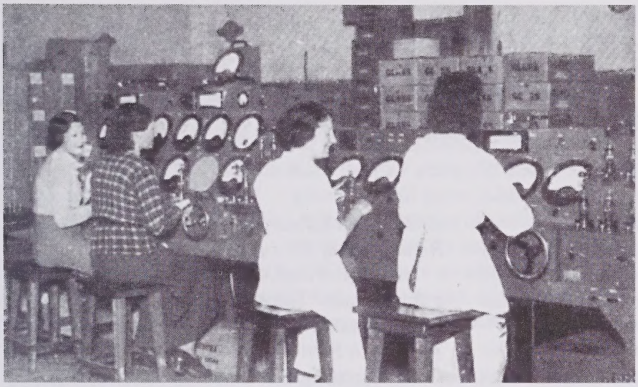
CAMCO
Loud Speaker
$9.50
The brown fibre, Camco Loud Speaker pictured here is a very pleasant family friend. Twenty-two inches tall Ten inch bell. Artistic, black enamel metal base and six foot, durable black cord. Complete with a clear, mellow tone Camco Loud Speaker Unit making a quality speaker at a fair price. At your dealers.
DEALERS: Ask your jobber about Camco products or write for complete details.
CANNON & MILLER CO., Inc.
SPRINGWATER, N. Y

CORYPHONE
LOUD SPEAKER
has the very quality you have wanted for so long.
Its tone, scientific construction, and individuality of appearance are the result of 25 years of telephone manufacturing experience.
Coryphone "Loud Speaker" plugs in like a headset—no external battery is required.
It has an adjustable feature to compensate for individual conditions and can be used with dry cell and storage battery receiving sets.
AT THE LOWEST PRICE ITS QUALITY PERMITS $40
Other Cory Quality Radio Telephone Equipment
CORYPHONE "MASTERTONE" SPEAKER, $22.00
CORYPHONE "RADIO" HEADSETS
DOUBLE RECEIVER TYPE
3200 OHMS, $9.50
2000 OHMS, $8.00
CORYPHONE "RADIO" HEADSETS
SINGLE RECEIVER TYPE
1600 OHMS, $5.00
1000 OHMS, $4.25
CORYJACKS, 60c, 70c, 80c; CORYPLUGS $1.00 Each
SOLD BY ESTABLISHED DEALERS EVERYWHERE
If Your Local Dealer Cannot Supply You Order Through Him or Send Order and Remittance Direct to Us
ILLUSTRATED LITERATURE ON REQUEST
PHILADELPHIA THE BOURSE
CHAS. CORY & SON, Inc.
183-7 VARICK ST., NEW YORK, N. Y.
SAN FRANCISCO 11 MISSION ST.

## *ARGENTINA'S FIRST VALVE FACTORY,* *continued from page 61*

in a hydrogen atmosphere, to prevent oxidation. The hydrogen flowing through the system escaped at (7), where it was kept burning to prevent it from collecting with attendant explosion hazard.

The outgassed parts were brought to the assembly department in trays and hand-assembled with the aid of a brass pattern (a different one for each type of valve, of course). The brass pattern for a type 43 (looking down at the top of the valve) is shown at Figure 3. Assembly tools included a small spot-welding machine, the brass pattern, tweezers, and a magnifying glass. The various parts were placed into the pattern which held them in exact position. Next the mica lower supporter was installed. The parts were now



*Left: The final electronic testing station. Right: Typical S.A.I.R.A. valve and box.*

welded to the valve stem wires. Later, the pattern was retired and the upper mica element support was installed.

After appropriate quality control, the valve was sealed and exhausted. "Welding" of the glass bulb to the stem, and subsequent exhausting of the bulb, was done in a rotating machine. Exhausting was done first by mechanical vacuum pumps and followed up with mercury diffusion pumps. While the bulb is still being exhausted, the bulb was heated by a gas flame, and the elements inside by an induction coil, to make sure that all components are outgassed. The finished valves were subjected to strict electronic tests before being packed in cartons.

The S.A.I.R.A. factory closed down about 1939, during a very healthy period for the Argentine electronic industry, soon after it was taken over by the Phillips Company of Eindhoven, Holland.

**ACKNOWLEDGEMENTS**

(1) Revista Telegráfica Electrónica, Editorial Arbó, Buenos Aires.
(2) Sr. Raúl José Petrucci, Director del "Museo Radiofónico de Boulogne," Buenos Aires.

*Note: All photos were taken in the S.A.I.R.A. factory, Buenos Aires, 1938.*

## *OBITUARIES,* *continued from page 59*

and served as the Editor of their bulletin for twelve years. His three books, *70 Years of Radio Tubes and Valves, The Golden Age of Radio in the Home* and *More Golden Age*, are respected sources for antique radio collectors.

MELVIN (MEL) HOWARD TORME, 73, (6-5-99) singer and composer. At age four he began singing with the Coon-Sanders Orchestra at the Blackhawk Restaurant in Chicago. During his early school years he continued to sing with Buddy Rogers and other name bands and was heard on radio soap operas. During his nearly 70-year career he also performed in night clubs, television, films and concert halls. Torme wrote more than 300 songs including such hits as *Stranger in Town, The Christmas Song, Born to be Blue* and *Country Fair*. Some of his film credits include *Higher and Higher* (1944), *Let's Go Steady* (1945), *Words and Music* (1948) and *The Snowman* (1974). He received a lifetime achievement award from the National Academy of Recording Arts and Sciences at the Grammy Awards last February.

Information for this column was obtained from *The Boston Globe, Broadcasting and Cable, The Complete Directory to Prime Time Network TV Shows 1946-Present (4th ed.), Connecticut Wireless Gazette, The Encyclopedia of Jazz (1st ed.), The Hartford Courant, On the Air: The Encyclopedia of Old-Time Radio, The Portland (ME) Press Herald, The New York Times, QST, USA Today* and *Variety*.

Thanks to Edward M. Gable, K2MP; George E. Hausske, W9OLE; Robert E. Lozier, Frank Q. Newton, Jr, W6SYG; Richard B. Waddell and Dr. A. David Wunsch for additional source material.

# NEW BOOKS AND LITERATURE

EDITED BY **WILLIAM E. DENK, W3IGU**, 81 STEEPLECHASE RD., DEVON, PA 19333-1226

*PLEASE INCLUDE SASE FOR REPLY.*

**Radio Tubes and Boxes of the 1920s**

*By George A. Fathauer. Published by Sonoran Publishing, LLC, Chandler, Arizona 85226. 105 pages, 8½ by 11 inches, soft cover, $26.95 plus $3.50 S & H. Also available from book stores.*

There are only five pages of text, so this is primarily a picture book. But what a book, and what pictures — all in living color! There are 360 top-quality photos of 1920s tubes and their cartons, along with 40 magazine ads and excerpts from company literature. On pages 103 and 104 you'll find Brother Patrick Dowd's list of the 513 brand names for the ubiquitous 201A.

Although not a tube of the 20s, there's a nice picture of the DeForest double wing Audion (circa 1915), on the frontispiece — shown along with a DeForest carton.

The author selected a great decade for his coverage, for it was in late 1920 that KDKA began its regular broadcasts, following which radio took off like a tornado. Plenty of books cover the receiving set aspects of our hobby, but Fathauer gives us a most attractive book that zeroes in on just the beauty of the tubes and their boxes that were available during that exciting ten-year period.

All the familiar ones are there, along with Ace, Bostron, Clover, Diana, Echotron, Falck, Globe, Hubtron, Imperial, JRC, KMA (by May Seed & Nursery Co. of Iowa!), LaSalle, Magnatron (1925!), Neptron, OK, Panama, Quaker, Regal, Schickerling, Tip Top, Ureco, VanHorne, Wearwell, Yankee, Zetka, and hundreds of others. Every letter of the alphabet but X!

Your reviewer, a one-time patent and trade mark practitioner, noted that the Rolls Royce Tube Company ad of September 1924 was followed by its April 1925 ad for "Roice" Radio Tubes over the name "Roice Tube Company" of the same Newark, NJ address. Well, they tried!

This is one interesting and beautiful book. Take my word for it; you do not have to specialize in tube collecting to enjoy it.

♦ ♦ ♦ ♦

**The AWA Review Volume 12, 1999**

*Published by The Antique Wireless Association, Editor William B. Fizette. 6 by 9 inches, 320 pages, soft cover. Price $29.95 U.S. postpaid in the U.S. & Canada; $35.00 U.S. elsewhere. Order from Edward M. Gable, 187 Lighthouse Road, Hilton, NY 14468.*

Unlike previous *AWA Reviews*, this one covers a single topic, "The Atwater Kent Radios," by that leading authority, AWA's Ralph O. Williams. This AWA Review is quite an important offering.

Paraphrasing Editor Fizette's forward:

*One of the giants of American industry was Arthur Atwater Kent, who, in the brief span of fourteen years, designed, manufactured, marketed, and sold some five million radios. While he became exceedingly wealthy in the process, he in turn bequeathed to us a legacy of a myriad of unique products of high quality. These are the topic of this book.*

Fizette emphasizes that this book is not a reprint of Ralph's prior writings, but a complete new work covering AK's first lab instruments to his superhets. Included is an informative 20 by 28-inch chart detailing all the AK radios and their characteristics.

Only passing reference is made to AK's beginnings as a manufacturer of automotive electric products; the discussion moves from AK's radio parts production in 1922 through the end of his business in 1936, quite a chunk of broadcast receiver history.

Chapters 1 and 2 cover parts, such as variometers and variocouplers, AF and RF transformers, sockets, variable condensers, detector units, audio amplifier units and mounting boards which preceded the sale of complete receivers. Of the book's 20 chapters, Chapter 4 covers the pre-Ten series, while Chapter 5 is directed to the popular Model 10 series, including "Radiodyne," and the Model 12 series with three A.F. stages.

Chapter 7, directed to the "The Thirties Series," covers AK's introduction of "B" eliminators, and then the Model 37 of 1927 which was the company's first radio to incorporate a self-contained power supply.

Chapters 14 and 15 deal with the firm's preparation for the introduction of its first superheterodyne, the Model H. The lavishly illustrated book includes 106 fine photos and graphics.

Without question, this Review is a MUST for collectors of Atwater Kent radios. but it is recommended to anyone interested in the production of early broadcast receivers.

# CLASSIFIED ADS

Old-time ads are free to members collecting and restoring equipment for personal use. Please observe the following: (1) one ad per issue per member; (2) include as SASE if acknowledgement is desired; (3) material must be more than 25 years old and related to electronic communications; (4) give your full name, address and zip code; (5) repeats require another notice (we are not organized to repeat automatically); (6) the AWA is not responsible for any transaction; (7) we retain the right to reduce an ad's size if over seven lines; (8) AWA does not accept commercial advertising in this column; and (9) closing date is six weeks prior to first day of month of issue. Ads received after that time will be held for the following issue. Mail all ads to: **RICHARD RANSLEY, P.O. BOX 41, SODUS, NY 14551**.

## IMPORTANT!

*OTB* classified ads are now available for browsing in the "*OTB On Line Edition*" on our internet web site (www.antiquewireless.org). This practice will give members dramatically increased exposure for their ads.

### SELL/TRADE—BC/SW TUBE RADIOS

Radiola 32, working, $350.; Radiola 28 and 104 speaker, $300 for the pair; Sparton 931, $135. All radios must be picked up in St. Paul. Phillip Drexler, P.O. Box 16445, St. Paul, MN 55116-0445

Tube radios including Tesla, $70.; Stern, $50.; Murphy, $60.; Italian Var Meccanica, $60.;Sanyo, $70.; Metz, $60.; Aga (Swedish), $70.; Argirios Adamidis, Kampouridi 19, Panorama, Thessaloniki, Greece 55236 E-mail: aadam@it.teithe.gr

Wards Airline radio, Model 74- No. 2700, with 6 tubes plus power rectifier, with service manual. Tubes still light. Make offer. Buyer pays UPS shipping charges. Harold Mitchell, Rt. 1, Box 287, Baraga, MI 49908-9749

Federal 59, $850. Pickup only. John S. Lowe, 3025 Harpers Ferry Rd., Sharpsburg, MD 21782 (301) 432-2420

Western Electric 4-D Receiver, Ser. No. 236, $1000.; Independent Wireless Telco Inc. Radio Receiver Type A-1, Ser. No. 117, $2000.; Adams Morgan WWI piece. Exact ID unknown. Very heavy and measures approx. 23" wide, 11" deep and 14" high, $3000. John Smith, 65 Glenwood Rd., Upper Montclair, NJ 07043 (973) 744-3387

Collins 75A4, $750. KWS-1, $2000.; Hammarlund SP-600, $300; Johnson Viking II, $200; Zenith Transoceanic, $130; National HRO, $400., SW-3, $350 and SW-5, $300; Atwater Kent Model 10, $900; Hallicrafters SX-23, $300; Knight Ocean Hopper, $175; Heath T-3 Signal Tracer, $25. Carter Elliott, 1460 Pinedale Rd., Charlottesville, VA 22901 (804) 979-7383 E-mail: Celliott14@aol.com

### SELL/TRADE—GENERAL

Photocopies: Zenith 1000-1, Radiola III, 18, 60, 100A, Majestic 52 and other radio, tube, T.E. manuals, nicely bound. Some novelty radios. LSASE for list. Herman Gross, 1705 Gordon Drive, Kokomo, IN 46902 (765) 459-8308 E-mail: w9ITT@juno.com

Stromberg-Carlson TS-16-10M 16" TV/radio/phono in original beautiful cosmetic condition. Also a fine Victor RE-75 early ornate high boy and numerous radio consoles by A-K, Airline, Amrad, Crosley, GE, Majestic, Philco and others, plus table radios, a few TVs and picture tubes. Lists and details upon request. Malcolm Burdick, W1NOO, 156 Station Rd., Hampton, CT 06247 (860) 455-9640 before 8:30 P.M.

Eight Pilot Super Wasp coils, $125; set of 4 pin shortwave coils, $75; Philco 118B cathedral, $295; Zenith pop-up, $40; Acousticon tube hearing aid, boxed, $35; Kadett Jr. has cracked cabinet, $125; Jensen 15" speaker, $50; Mail-A-Voice recording blanks, $2 ea.; collection of twelve 2" and 3" electrostatic cathode ray tubes,

$95 for all; Rider TV manuals Vol. I and Vol. II, television schematics 1938-1950, $65 for both. SASE for three page list. Bill Rolf, 30131 Center Ridge, Westlake, OH 44145 (440) 871-4547

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100 watt stereo system mounted in a Barzilay oiled walnut three-piece cabinet, Model 80E. It consists of a 4 ft. long console and two 2 ft. speaker cabinets all enclosed by tambour doors and a horizontal top-lift door on the equipment console. Inside has H.H. Scott 296 integrated dynaural laboratory amplifier, Fisher 200B FM tuner, Collaro RC-440 turntable/changer. Also 50 factory recorded stereo tapes (7½") and 200+ LP records of 1950s and 1960s and some classical records. Speaker cabinets are bass reflex for 15" woofers and 10" conversion adapters. A Roberts 997 tape deck sits on top. SASE for full details. Francis H. Yonker, 1229 Inverary Place, State College, PA 16801 (814) 867-1400

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Old radios, test equipment, radio memorabilia, radio games, radio toys, premiums and more. See web site at radioattic.com clicking on 'Radios for Sale - Bob Hoke'. Bob Hoke, 541 Walnut St., Galena, OH 43021 E-mail: bobsradios@yahoo.com (740) 965-1885

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3 Hallicrafters SX99, S53, S40; Hammarlund HQ129X; MS Victor with wood horn, very nice machine, $5800.; 23" morning glory in nice condition, $295.; Fisher 500 stereo receiver in nice wooden case, $145.; 20 other tube type stereo receivers, amps and FM tuners; Sams auto radio series #2 to 169 (163 books). Charles Seidel, P.O. Box 1500, Merlin, OR 97532 (541) 474-2596

## SELL/TRADE—KEY & TELEGRAPH

About 25 bugs, 15 turn-of-the-century brass triumph-style keys, and a large assortment of sounders, relays, KOBs. Sounders, relays, keys are $50. each. KOBs are $75. SASE for list. Dave Pennes, WA3LKN, 4607-C Santa Cruz Drive, Indianapolis, IN 46268-5354 (317) 471-9605 E-mail: dpennes@hotmail.com

## SELL/TRADE—LITERATURE

Sams #1 - 220 in a Sams 4-drawer cabinet, pickup only, $150. Ronald Graves, 3120 N72 Way, Hollywood, FL 33024

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Radio schematics & service data, $2.50 plus #10 SASE. (price is for 1 to 5 pages of data per model, over 5 pages copy charge is 20 cents per page) US & Canadian receivers, 1920s to 1960s. Questions /quotes answered with SASE or via E-mail. Data list available with SASE or E-mail. Steve Rosenfeld, P.O. Box 387, Ocean Gate, NJ 08740; phone (732) 269-2022, fax (732) 269-2897, E-mail: srosenfeld@ems.att.com

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The following *OTB*s for sale: 1996 Vol. 37 1-4, 1997 Vol. 38 1-4, 1998 Vol. 39 1-4. $8.00 per year, postage paid within the continental US. James Miller, N2IMS, 80 Campfire Rd. N., Henrietta, NY 14467 (716) 359-3337

## SELL/TRADE—MILITARY

WWII key, $40; WWII headset 2x2000 ohms, $30; microphone, $30; sub-miniature tubes and parts from walkie-talkie Model RT-196C/PRC-6 (Korean War). Argirios Adamidis, Kampouridi 19, Panorama, Thessaloniki, Greece 55236 E-mail: aadam@it.teithe.gr

## SELL/TRADE TRANSISTOR/CRYSTAL SETS

Galena crystal radios or parts. Small radio parts are free. S & H is not. Leonard Gardner, 458 Two Mile Creek Road, Tonawanda, NY 14150 (716) 873-0447STS

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Old Soviet transistors, $50 - $70; Shirt pocket transistors, $30. Argirios Adamidis, Kampouridi 19, Panorama, Thessaloniki, Greece 55236, E-mail: aadam@it.teithe.gr

## WANTED—COMMUNICATIONS GEAR

Want McMurdo Silver Model 14-15 communications receiver. Also need schematic for 14-15. Have McMurdo Silver and other trades. Hardy Trolander, 1475 President St., Yellow Springs, OH 45387 (927) 767-4551

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McMurdo-Silver 802 HF ham receiver, circa 1948. Jim Miller, 32 Garretson Road, White Plains, NY 10604 (914) 644-2603 E-mail: jmiller@Basit.com

## WANTED—GENERAL

Vacuum tube Theremin circuit; Pickett N-16 slide rule with instructions. Jim Dapkus, W6575 Dakota Ave., Westfield, WI 53964

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Looking for Arvin 517 tombstone chassis. Also a Philco Model 20 in restorable condition, will re-

finish. Patrick Franzis, 235 Millville Ave., Naugatuck, CT 06770 (203) 723-8976 E-mail: n1ocj@arrl.net

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Anything pre-1926 by Adams-Morgan, AMRAD or Kennedy. Especially need the scarce ones. If necessary, will buy your entire collection to get a few pieces I don't have! Also very interested in crystal sets, detectors, and speakers. Ed Bell, 5311 Woodsdale Rd., Raleigh, NC 27606 (919) 851-1517 E-mail: ekbell@mindspring.com

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Belknap radios (1920s battery sets, cathedrals, tombstones). Also speakers, earphones, batteries, tubes, advertising, etc. Wayne King, 408 Forbes Drive, Shelbyville, KY 40065 (502) 633-6564

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Antique medical, scientific devices, fans, deco clocks, radios, and horn phonographs. Richard Cane, 1333 N.W. 127th Dr., Sunrise, FL 33323 (954) 846-7116 E-mail: rbcane@sprynet.com

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Cleveland Institute of Electronics Slide Rule Course. This course used the Pickett Model N-515-T slide rule and consisted of 4 pamphlets. Original or photocopies OK. Ray Beningo, AA4ZJ, 12099 Rockford St., Spring Hill, FL 34608 E-mail: benray@gate.net

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GE X-371, X-372, Hallicrafters CR-3000, TEN-TEC 315, RX-10, Mosley CM-1, Heathkit AR-3, cabinet for American Bosch 440T, Herman Schnur, 3205 Brick Kiln Road, Greenville, NC 27858

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Western Electric amplifiers: 25B, 25C, 117A, 124.142; Western Electric speakers, receivers, horns and loudspeaking telephones in any condition: 551, 555, 594, 713, 720, etc.; WE tubes 101D, 104D, 217A, 205D, 262A; WE input/output trans.; UTC xfmrs: A10, LS10X, LS19, LS20. Acrosound TO350. Ming Yang, 1995 University Avenue, #119, Berkeley, CA 94704 (925) 376-4220 E-mail: yang1240@aol.com

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Pre-1945 police motorcycle and police car communications radio equipment. Also want BC-611 Walkie-Talkie. Ray Littlejohn, P.O. Box drawer 1794, Columbia, SC 29202 (803) 256-3466 daytime

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A vintage Theremin, the electromusical instrument built around 1930 by RCA. Anders Widell, Tinghogsvagen 60, S-22240 Lund, Sweden E-mail: Anders.Widell@mikrobiol.mas.lu.se

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Zenith collector looking for a Model 835 (or 935, same set, following year) chrome-front tombstone (vertical bars, shadow-graph tuning, white-dial) and a Model 27 (1st AC set) on the spinet leg stand, which I would pick-up within a day's drive radius. Thanks for any help. Chris Hicks, RR 2, Box 342, Clinton Corners, NY 12514 (914) 266-4257

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Grebe CR 13 (any condition), Amplion AR 39 horn (black wrinkle painted aluminum, resembles horn used on Edison cylinder player); Westinghouse Type CAY-2601 filament ammeter (0-1.5A used in IP501); desperately need a Connecticut Type J-113 filament rheostat (check your parts box, will pay $100. for one complete with knob and dialscale!) J.C. Woychowski, 81 Penn. Ave., Niantic, CT 06357 (860) 739-6579 or Fax (860) 739-4673 E-mail: jc.woy@snet.net

## WANTED—INFORMATION

Manual or at least alignment data for Collins 51J3 receiver. Will pay copying or other reasonable costs. Harry Mills, K4HU, 631 4th Ave. W., Hendersonville, NC 28739 (828) 693-7519 E-mail: millsjr@bigfoot.com

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Information on stringing the dial cord from the band switch to the drum of the Hallicrafters WR-4000 Transistorized Portable. Madell Reynolds, 5 Hatteras Landing, Hampton, VA 23669 E-mail: MadellR@aol.com

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Schematic needed for Italian Broadcast and one S.W. band, 5 tube, table model in a 6½" × 6" × 10" wood cabinet. Has multi AC line voltage input. Radio was obtained in 1944 in Lovorno, Italy. Chassis nameplate has "I.M.R. Industra Meccanicia Radiofonica Viale Dante Alighieri No. 27 LUINO-Apparaecchio Tipo I.M.R. (blank) Matricola No. (0675)." Contains 6X5, 6K7, 6Q7, 6A8, 6V6 tubes. Paul Nevatt, 1114 S. Stewart Ave., Springfield, MO 65804-0325 (417) 862-1797

## WANTED—KEY & TELEGRAPH

Looking to add telegraph items to my collection. Unusual bugs, pre-1870 keys and sounders etc., and large spark era keys very welcome. I have some good traders. Gil Schlehman, K9WDY, 335 Indianapolis, Downers Grove, IL 60515 (630) 968-2320

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The world's most complete collection of T. R. McElroy telegraph instruments still needs a few

models. If you have a Mac-Key, early code oscillator, or other McElroy items for sale or trade, please write or call. Tom French, 151 Barton Road, Stow, MA 01775 (978) 5573

Bottom of the line Vibroplex Zephyr. Looks like Champion except for 3" wide base. Brian Roberts, K9VKY, 130 Tara Dr., Fombell, PA 16123 (724) 758-2688

## WANTED—LITERATURE

Individual wishes QSL cards from Iowa when the state was prewar '9' call district, cards postwar to 1950 and any 1950s QSL of KN0CER or K0CER at Ames, Iowa. These cards are for my private enjoyment and will not be sold nor traded. Dwight Smith, W5USM, (ex K0CER), 4908 Peach Tree Drive, Garland, TX 75048-4118 or E-mail: w5usm@aol.com

Radio News January 1944; Radio Craft January and May 1940, August 1942. Want catalogs WRL 1963, Burstein-Appleby 1955, Radio Shack 1954; Allied 1939, 1944, 1945. I have the following Allied catalogs to trade: 1929, 1931, 1940, 1941, 1947, 1948, 1952, 1954 to 1970. A. J. Bernard, P.O. Box 690098, Orlando, FL 32869-0098 (407) 351-5536 E-mail: ni4q@juno.com

GE looseleaf Engineering Tube Manuals; Radio's Master 1935-1965; Allied Radio catalogs 1946-1955; any copies of "Audio Record." Peter Keller, W1CRT, 7445 SW Bayberry Dr., Aloha, OR 97007

Want literature on early radio control. Looking for copies of 'Miniature Auto Racing' and catalogs. Also 1960s and earlier radio control cars including Dynamic Models, Cox, Jerobee and boats. David Gibbons, 3225 W. 29th Ave., Denver, CO 80211-3705 (303) 477-6822

Complete set of 'The AWA Review' or Volume 4. George H. Rancourt, K1ANX, 82 White Loaf Rd., Southampton, MA 01073 (413) 527-4304

## WANTED—MILITARY

Restoring SCR-178 radio set. Would like to find hand crank generator GN-37, antenna base insulator IN85, chest legs LG-8 and accessory chest CH-39. Would like to buy items or have military radio items to trade. Paul Thekan, N6FEG, 335 Rutherford Ave., Redwood City, CA 94061-3514 (650) 367-1499 E-mail: Paul.Thekan@eimac. cpii.com

## WANTED—PARTS

Input transformer to a pair of 71As in a pushpull amplifier used in a Philco Model 20. Secondary is 6 M ohms, 3 K ohms C.T. DC, Part #4232. Is there is substitute? Any help would be appreciated. Thanks. John O'Donnell, 2144 Cemetery Rd., Fabius, NY 13063 (315) 677-5277

Radio chassis and speaker for a Stewart Warner R1264A, believed to be Chassis #126. Any help in locating this would be appreciated. Mr. and Mrs. L. M. Page, 4138 North Hwy. 41, NMullins, SC 29574 (843) 464-6887 E-mail: pagehaven@aol.com

Looking for the clock that was used in a GE radio Model 7-4310. Also need the following parts for a Model 2622 Craig tape player: Doors for the battery case and for the tape. James Maloney, 1703 Leno Road, Macedon, NY 14502

Pair of Crosley headphones, have for trade W.E., Baldwin phones, radio tubes or cash. Ross Smith, 1133 Strong Ave., Elkhart, IN 46514

## WANTED—TUBE RADIOS

A multiband Norelco (Philips) AM/FM Deluxe 22RL798/44 (6X3S7/54) w/transformer, instruction book, working perfectly. Also White's Radio Logs from the 1930s thru 1950s. A. Sherry, P.O. Box 1051, Riverdale, NY 10471

Zenith Transoceanic Royal 3000 transistor portable in very good to excellent condition and working. Order. Also would want AC adaptor that comes with the above. Anthony Lonzo, 158 West 9th St., Brooklyn, NY 11231 (718) 522-4907

Detrola console radios, with and without phonograph and Detrola wood tabletop radios. Scott Flaugher, 41100 Plymouth Road, Plymouth, MI 48170 (734) 737-4221 E-mail: scott.flaugher@unisys.com

## WANTED—TUBES & TRANSISTORS

Western Electric tubes, equipment and literature. Also buying many other tubes, tube manuals and audio literature. Call toll free or send me your list. Don Singerhouse, P.O. Box 321, New Richmond, WI 54017 tel/fax (888) 715-8823 E-mail: singtube@frontiernet.net

# BUSINESS CARD ADS

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Send us a copy of your business card, or a special typeset ad designed to fit our standard space. We can, alternatively, typeset a short message for you (no more than eight lines, 50 characters max per line, please). For the time being, there will be no charge for typesetting. All ads must be for radio-related items or services and must be paid in advance. Send your ads and checks (payable to AWA) to Kevin Carey, Advertising Manager, *OTB*, P.O. Box 56, West Bloomfield, NY 14585. Closing date is six weeks prior to first day of month of issue.

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newly-completed addition. This will improve the environment for the paper collection as well as increase the size by forty percent. The current library area will be converted into a badly needed shop for restoration work, maintenance and display construction. We are also pleased to announce that Saturday work sessions have commenced for those not able to meet on Tuesdays. October 23rd and November 20th are the current dates. Contact the Curator for details. Also on the "Job Jar" list is the need to rework the antenna at the Annex. I'm not sure how long it's been broken, but the big loop is currently a big open circuit. The termination at the end of the loop is hanging down, but the big old Millen transmitter just keeps on making RF.

The first weekend in October saw a trip to the Hammond Museum of Radio in Guelph, Ontario, Canada, for the occasion of their grand opening. Wonderful event. See more information elsewhere in this issue. We also have a grand new AWA Web site with a dandy museum tour. Be sure to take a look at the new URL of www.antiquewireless.org.

Cheers for now,
Ed Gable K2MP/W2AN
Museum Curator/Director

## SILENT KEYS

*We record the passing of the following AWA members with deep regret.*

**ROBERT ARROWSMITH**

**LAURENCE S. COLEBANK**
KODWX

**ALAN M. DORHOFFER ***
K2EEK, Editor of *CQ* Magazine

**JOHN E. KOTICH**

**C. ORVAL PARKER**

**HERBERT L. SNELL**
W2FCH

**JOHN W. STOKES***
New Zealand author & radio historian

**CLARENCE YOUNG**

** For information about the professional careers of Alan M. Dorhoffer and John W. Stokes, please refer to their listings in the "Recent Radio, TV and Entertainer Obituaries" column found elsewhere in this issue.*

*Note: AWA officers and members are requested to submit all information about Silent Keys, with or without special recognition, to Joyce Peckham, Secretary, Box E, Breesport, NY 14816. This will help in the collection, coordination and appropriate recognition of both AWA members and others who have made contributions to the electronics and entertainment industries.*

### *Recent Museum Donors*

Tom Ely W2ODW / *Misc. test equipment*

Jim Carroll / *Kolster chassis, tubes*

Ed Gable K2MP / *Kolster radio, cellular phones, pager*

Mamoru Fujimuro JA1FC / *Toshiba tubes*

Wes Chatelier W5DPM / *Gross Model 25 TX*

Ed Huston / *Five Ham TXs, UV-202*

James Beyer W9ADJ / *Collection 25+ Magnetrons, W/E 8A Osc*

Brother Pat Dowd W2GK / *Measurements grid dip meter, more*

Chris Bowne AD1J / *Millen 90711 VFO*

Paul Wenk N3KR / *Tesla coil, TX tubes*

Francis Conners / *German Loewe Opta Fonovox*

Gail Heinzman K2BCL / *Oscilloscope*

George Glan / *Large collection 15+ radio sets*

Janet Deisenroth / *Radio Boys, VG with jackets*

Dick Fish W2OWF / *Vintage tubes*

Tom Mahalek / *Tube tester*

Jack Wenrich K2RY / *FM tuner, oscilloscope*

Allen Pallnat KX2H / *Photofact documentation*

Tom Rosica W2GIR / *Xtal set, wavemeter, tubes, much more*

Bill Prensky W3HMM / *Hallicrafters S-22R*

Arthur Wilson WA2JON / *HW-101 + HP23C, tube tester, more*

James McNally / *Radiola 60, Peerless reproducer*

John Stranges / *1920s RCA Shipping crate*

Bob Eaton W2SBI / *Heath ham items, Millen wavemeter*

Rollin Parker / *Huge 1000+ collection of books and magazines*

C.R. Straubing / *Interesting Philco 73 coin operated hotel radio*

Mike Koenig / *Two 1920s W/E crank telephones*

# *OTB* Back Issues

The following back issues of *The Old Timer's Bulletin* are available at $3.00 each postpaid, with a 20 percent discount for six or more issues and 30 percent off for 12 or more. Index to *OTB* volumes 20-34 and *The AWA Review* Volumes 1-8 is free on request with purchase. Please indicate alternative choices when ordering back issues of *OTB*.

**—VOLUME AND NUMBER —**

25-4 Comet Pro/4-tube superhets/20s tuner
26-1 Cockaday Rcvr/Silver-Marshall/'29 Hartley XMTR
26-2 TTY Perforator/FB7 Receiver/McElroy Championship
26-3 Nation FB7 II/Radio in S. Africa/Mercury Super 10/ Building a 1929 Receiver
26-4 Gilfillan History I/ Sargent Model 11 Receiver
27-1 Gilfillan History II/Schickerling Tubes
28-1 Dynergy AC-Powered Radio/Pilot TC37 TV
28-2 '26 Radiomovies Today/National AGS I
28-3 Dowd Tube Collection/National AGS II
28-4 SE-1950 Radio Compass/National Sliding-Coil Receivers/Collecting Radio Batteries
29-1 Philco 17 Restoration/ZL2JJ '34 Station
29-2 Fada 460 Restoration/3ZO 1922 Station
29-3 Moorhead Tubes I/British '30s TV I
29-4 Moorhead tubes II/British '30s TV II
30-1 GE Octagon TV Set/TR-1 Transistor Clones
30-3 Military Equipment Special-17 pgs. of 48
30-4 Broadcast Receiver Special-12 pgs. of 48
31-1 1903 Ship Station/Spark vs ARC 1912/KWM1
31-2 Minimax/Spkr&Magazine Restoration/ Pushbutton Sets
31-3 Tube Special-19 pgs. of 48
31-4 International Special-11 pgs. of 48
32-1 Early SSB eqpt/AR188/BC-375/1915 Ship Spark XMTR
32-2 Restore 67.5 V Bats/A&B Pwr Sply/WWI Navy Equip.
32-4 Marconi V-24 Valve/HRO in British Army
33-4 Scott Special Rcvr/National Power Units
34-1 British crystal Sets/National Power Units
34-3 International Special II-20 pgs. of 64
34-4 Bell Labs Transistor Set/"Larkspur" Radios
35-1 Radiola and Aerola Grand/German WWII Magnetrons & Avionics/Tech-Manual Art
35-2 Van Horne Tube Co./Philco TV Designers/Foreign "HROs"/1200- and 1600-series tubes
35-3 Radiola 17 and 18/1929 regen/G&R Valve Co.
35-4 Negatron/Mercury Super 10/The Breting 14/James Millen Memorial Station
36-1 Orrin Dunlap's Lab/Kolster K23/Bush & Lane Radio
36-2 Headset Update Listing
36-3 100 Years of Marconi Radio
36-4 History of Rogers Batteryless Receivers
37-1 T.V.-Dr. Ernest Alexanderson, Part 1
37-2 T.V.-Dr. Ernest Alexanderson, Part 2
37-3 Evolution of the Auto Radio, Part 1
37-4 Reginald A. Fessenden and the Development of Radiotelephony
38-2 DeForest Gang Hits Colorado-Part1/Nathan Stubblefield-Forgotten Pioneer of Wireless-Part1
38-3 Early TV Gear/Mahlon Loomis/KWR-37
38-4 Rider VTVM/ Fr. Joseph Murgas/30s Antennas

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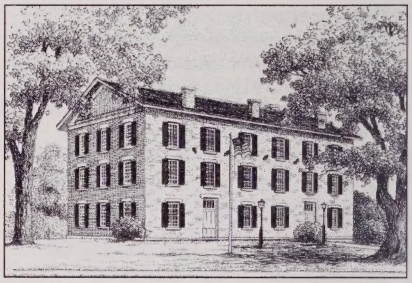

**Mailing Address:**
Ed Gable, Curator, AWA Museum,
187 Lighthouse Rd., Hilton, NY 14468
e-mail: k2mp@eznet.net

# MUSEUM NEWS

As echoed elsewhere in this issue the big news was the 1999 AWA Conference. "Best ever" was the most common comment heard. Also most gratifying were comments from the record number of you who visited the Museum and Annex Wednesday evening and again Saturday afternoon. All of the museum staff and guides had a wonderful time and we sure enjoyed showing off your museum. I certainly must thank all of you who were again so generous this year with your gifts of artifacts and the always appreciated cash donations.

Although all of the donations were wonderful, I need to point out the excellent addition of a very nice pre-war commercial Ham transmitter. These are very rare as most people home brewed their transmitting sets to save money. Wes Chatelier, W5DPM, gifted a Gross Model 25 transmitter to the AWA but it was incomplete. Enter AWA's Ham radio guru John Rollins, W1FPZ. John had previously restored a Gross 25 and was ready for the task. Not only did he restore the Gross, but he had to build from scratch the cabinet and power supply using correct vintage materials. The result is a very nice working transmitter which you will hear on-the-air from W2AN or W2ICE in the future contests.

The museum is closing after a most successful season. Many organized tours were shown through as well as the usual weekend crowds. We had many new guides this year and I am indebted to them all. The publication crew is busy again sending out the new *AWA Review* #12. This largest of all *Reviews* (322 pages) is full of anything you ever wanted to know about A-K. It is ready to ship at $29.95, postpaid. See order form on back page.

Just in is our long-awaited approval of exempt tax status for the museum. We have enjoyed this privilege with the AWA, Inc., but now the AWA Electronic Communication Museum has its own tax exempt status. This is one of the last hurdles in obtaining our coveted permanent New York State Charter.

Your museum staff is hard at work on several fronts. We are currently planning a significant move of the Bruce Kelley Research Library from the current location into the

*(continued on page 70*